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# ALLEN'S DIGEST

OF

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CHRONOLOGICAL LIST OF PATENTS DESTROYED IN THE FIRE OF 1835,  
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|                               |                |                        |                |                          |                |
|-------------------------------|----------------|------------------------|----------------|--------------------------|----------------|
| Spooner, E.                   | June 25, 1799  | Stuart, W. G.          | Feb. 5, 1822   | Boatright, J.            | June 11, 1829  |
| Smith, R.                     | May 10, 1800   | Dutcher, J.            | Feb. 17, 1822  | Minturn, J.              | June 11, 1829  |
| Deaver, John.                 | July 12, 1804  | Hawkins, G. M. and     |                | Rhodes, J.               | June 11, 1829  |
| Peacock, D.                   | April 1, 1807  | Emery, H.              | Feb. 16, 1822  | Brown, T.                | Sept. 11, 1829 |
| Vinton, S.                    | Nov. 18, 1807  | Gill, C. A. and Jas.   | Mar. 25, 1822  | Ruder, R. and A. Riley,  |                |
| Harris, H.                    | Feb. 24, 1808  | Gibson, J.             | May 2, 1822    | S. D.                    | Oct. 21, 1829  |
| Woodward, F.                  | July 18, 1809  | Willis, Wm.            | May 7, 1822    | Cobb, I.                 | Dec. 7, 1829   |
| Hall, S.                      | July 13, 1810  | Carpenter, B.          | July 1, 1822   | Armstrong, A. D.         | Jan. 5, 1830   |
| Sanford, J.                   | Aug. 20, 1811  | Lee, A.                | July 22, 1822  | Wilson, Samuel           | Feb. 6, 1830   |
| Turnbull, N.                  | Sept. 7, 1811  | Woolley, J.            | Sept. 14, 1822 | Walker, R.               | Mar. 10, 1830  |
| Klay, J.                      | Jan. 11, 1812  | Clute, P. J.           | Nov. 16, 1822  | Barnard, D.              | Apr. 21, 1830  |
| Tousley, R.                   | Jan. 11, 1812  | Schoonmaker, J. J. and |                | Pawling, C.              | May 1, 1830    |
| Patrick, M.                   | Jan. 2, 1813   | Dolson, J.             | Dec. 7, 1822   | Yager, J.                | June 9, 1830   |
| Seitz, J.                     | Feb. 8, 1813   | Williams, Thos.        | Dec. 19, 1822  | Cobb, J. P.              | Oct. 1, 1830   |
| Tousley, S.                   | May 28, 1813   | Rhodes, R.             | Feb. 25, 1823  | Mitchell, A.             | Oct. 12, 1830  |
| Murrey, M.                    | Aug. 7, 1813   | Weaver, J.             | May 8, 1823    | Cline, Samuel            | Nov. 15, 1830  |
| Pease, H.                     | Aug. 28, 1813  | Nixon, Geo.            | June 3, 1823   | " " (R)                  | Oct. 15, 1830  |
| Butler, J. and J.             | Mar. 1, 1814   | Hubbar, S. and Graves, |                | Anthony, J.              | Feb. 1, 1831   |
| Hill, C.                      | July 7, 1814   | J.                     | June 21, 1823  | Miller, T.               | Feb. 15, 1831  |
| Hall, J.                      | Nov. 10, 1814  | Hitchcock, D.          | July 16, 1823  | Peebles, A.              | July 20, 1831  |
| Wood, J.                      | July 1, 1814   | Jones, D. H. and Rich- |                | Thacker, B. Jr.          | July 20, 1831  |
| Swann, J.                     | July 5, 1814   | ardson, W. F.          | July 20, 1823  | Etheridge, N., Heath, G. |                |
| Morgan, J. and Harris, J.     | Oct. 11, 1814  | Beach, W.              | Aug. 26, 1823  | and Glynne, L. G.        | July 23, 1831  |
| B.                            |                | Hackney, O.            | Aug. 29, 1823  | Savage, W. and Davison,  |                |
| Tousley, R. and Swann, J.     | Nov. 6, 1814   | Pancoast, W. C.        | Jan. 20, 1824  | H.                       | Aug. 24, 1831  |
| Shultz, H.                    | Dec. 17, 1814  | Stark, H.              | Feb. 3, 1824   | Black, W.                | Oct. 4, 1831   |
| Bean, Elisha.                 | Mar. 4, 1816   | Austin, S.             | Feb. 27, 1824  | Carothers, J.            | Dec. 10, 1831  |
| Johnson, L.                   | Aug. 6, 1816   | Beach, W.              | Apr. 9, 1824   | Whittas, Thos. A.        | Jan. 14, 1832  |
| Cromwell, J.                  | Oct. 23, 1819  | Altason, T.            | Apr. 16, 1824  | Woodcock, B.             | Jan. 26, 1832  |
| Peacock, D.                   | May 20, 1817   | Swann, J.              | Apr. 24, 1824  | Ogle, J.                 | Feb. 28, 1832  |
| Richmond, Jas.                | June 28, 1817  | Chase, D., Gregg, A.   |                | Norton, Job B.           | Apr. 27, 1832  |
| Lupton, J.                    | July 31, 1817  | and J.                 | Aug. 4, 1824   | Crowl, Geo.              | June 27, 1832  |
| Davis, G.                     | May 26, 1818   | Gillet, N. Jr.         | Sept. 24, 1824 | Wolf, Geo.               | June 27, 1832  |
| Ogle, S.                      | June 9, 1818   | Spicer, A. Jr. and Toy |                | Moore, John              | Aug. 17, 1832  |
| Miller, P.                    | Oct. 26, 1818  | er, J.                 | Sept. 25, 1824 | Palmer, Geo. W.          | Aug. 17, 1832  |
| Goodrich, L. and Adams, J.    | Dec. 3, 1818   | Hunt, J. Y.            | Dec. 24, 1824  | Beach, W.                | Oct. 25, 1832  |
| Harrison, R. N.               | Dec. 19, 1818  | Ellington, G.          | Dec. 25, 1824  | Beach, W.                | Dec. 28, 1832  |
| Ports, Joseph.                | Nov. 7, 1818   | Taylor, A.             | Dec. 26, 1824  | Hoffman, Moses           | Dec. 28, 1832  |
| Tice, A. and J.               | Aug. 21, 1819  | Avery, G. D.           | Feb. 15, 1825  | Brewster, F.             | Jan. 24, 1833  |
| Miner, F.                     | Aug. 21, 1819  | Rich John Jr.,         | Feb. 16, 1825  | Peachey, H.              | Apr. 5, 1833   |
| Baltrop, John.                | Sep. 20, 1819  | Pettis, P.             | Feb. 15, 1825  | Speilman, H. and Mil-    |                |
| Swantont, J.                  | Nov. 13, 1819  | Whitman, S. W.         | May 7, 1825    | ler, D.                  | Mar. 25, 1833  |
| Marshall, P. and Smith, J. B. | Mar. 3, 1820   | Avery, G. D.           | May 25, 1825   | Donald, W. B.            | June 29, 1833  |
| Gibbs, G.                     | Mar. 8, 1820   | Richardson, W. F.      | June 27, 1825  | Donnell, Lewis           | July 23, 1833  |
| Jenkins, J. W.                | July 6, 1820   | Shephard, J.           | Apr. 12, 1826  | Delano, C.               | July 5, 1833   |
| Wright, J. L.                 | July 28, 1820  | Beach, W.              | Apr. 13, 1826  | Evans, G.                | Sept. 18, 1833 |
| Stevens, R. L. and E. A.      | Sept. 13, 1820 | Holdridge, Z. S. and   | Apr. 19, 1826  | Carter, Thomas           | Dec. 16, 1833  |
| Wood, C. and Brundage, G.     | Nov. 9, 1820   | Lawson, H. S.          | Apr. 28, 1826  | Sharp, Joseph P.         | Dec. 20, 1833  |
| Seaven, J. and Fay, J.        | Dec. 14, 1820  | Rhodes, R.             | Aug. 9, 1826   | Atward, W. and Hamblet,  |                |
| Wood, J.                      | Feb. 1, 1821   | Collins, S.            | Feb. 20, 1827  | D.                       | Dec. 24, 1833  |
| Stevens, R. L. and E. A.      | Apr. 23, 1821  | Austin, S.             | Feb. 22, 1827  | Stieblar, David          | Mar. 15, 1834  |
| King, G. J.                   | Apr. 23, 1821  | Cryer, N. G.           | Feb. 27, 1827  | Hussey, Benjamin         | Apr. 1, 1834   |
| Seeley, O.                    | June 20, 1821  | Carmichael, W.         | May 24, 1827   | Monford, John            | Apr. 8, 1834   |
| Falconer, Wm.                 | Aug. 27, 1821  | Dofler, G.             | July 28, 1827  | Prescott, Jos. T.        | May 15, 1834   |
| Phelps, O. and Moorehouse, G. | Sept. 13, 1821 | Pugh, E.               | Aug. 20, 1827  | Zook, S.                 | June 17, 1834  |
| Hitchcock, D.                 | Nov. 17, 1821  | Wiard, W.              | Dec. 24, 1827  | Jacobs, Jas.             | July 8, 1834   |
| Peacock, D.                   | Dec. 29, 1821  | Looveridge, R.         | Jan. 26, 1828  | Peachy, Henry            | July 25, 1834  |
|                               | Jan. 21, 1822  | Howard, C.             | May 8, 1828    | Cromwell, Joseph         | Oct. 9, 1834   |
|                               |                | Deats, J.              | Mar. 10, 1828  | Ghormley, David          | Feb. 13, 1835  |
|                               |                | Herbert, R.            | May 26, 1828   | Hess, William            | Mar. 27, 1835  |
|                               |                | Deakyne, J.            | Aug. 19, 1828  | Davis, D.                | July 17, 1835  |
|                               |                | Staples, N.            | Nov. 18, 1828  | Holt, Wm.                | Aug. 27, 1835  |
|                               |                | Gordon, John           | Nov. 1, 1828   | Gray, Guy                | Sept. 18, 1835 |
|                               |                |                        | Jan. 13, 1829  | Tefft, J. S.             | Oct. 17, 1835  |
|                               |                |                        |                | Sperry, Samuel A.        | Oct. 27, 1835  |

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OF

## Sub-Divisions of Plates and Claims.

|                  | <i>Plate</i> | <i>Claim</i> |   | <i>Plate</i>           | <i>Claim</i> |
|------------------|--------------|--------------|---|------------------------|--------------|
| ATTACHMENTS,     |              | 1            | 1 | MOLE,                  | 429 271      |
| BEAMS,           | 23           | 17           |   | MOLD-BOARDS,           | 461 291      |
| CLEANERS,        | 39           | 33           |   | PLOWS,                 | 491 309      |
| CLEVISES,        | 63           | 49           |   | POINTS,                | 691 449      |
| COLTERS,         | 111          | 73           |   | REVOLVING MOLD-BOARDS, | 721 469      |
| CORN-COVERERS,   | 183          | 111          |   | RIDGERS,               | 741 485      |
| COTTON-CHOPPERS, | 199          | 123          |   | ROTARY,                | 751 499      |
| COTTON-SCRAPERS, | 261          | 165          |   | SHOVEL,                | 835 537      |
| DITCHING,        | 301          | 185          |   | SIDE-HILL,             | 921 573      |
| FENDERS,         | 341          | 209          |   | STANDARDS,             | 985 607      |
| HAND,            | 369          | 227          |   | STEAM,                 | 995 619      |
| HANDLES,         | 411          | 247          |   | SUBSOILERS,            | 1055 649     |
| LANDSIDES,       | 421          | 259          |   | WEED-TURNERS,          | 1089 669     |

## GENERAL ALPHABETICAL INDEX.

|   | <i>Plate</i> | <i>Claim</i> |  | <i>Plate</i> | <i>Claim</i> |                         | <i>Plate</i> | <i>Claim</i> |
|---|--------------|--------------|--|--------------|--------------|-------------------------|--------------|--------------|
| Abbott, H. B.                                   | 939          | 580          | Allen, D.  | 137          | 84           | Ansley, C. C.           | 808          | 547          |
| Ackley, H. R.                                   | 968          | 592          | Allen, E.  | 157          | 93           | Anthony, D.             | 512          | 320          |
| Adair, J.                                       | 441          | 275          | Allen, B. S.                                       | 244          | 144          | Applegate, D.           | 350          | 212          |
| Adams, C.                                       | 66           | 50           | Allen, W. A.                                       | 415          | 248          | Archer, J.              | 871          | 548          |
| Adams, A.                                       | 83           | 56           | Allen, W. K.                                       | 509          | 319          | Armsby, J. M. C.        | 93           | 49           |
| Adams, S. J.                                    | 153          | 91           | Allen, R. I.                                       | 559          | 333          | Armstrong, J. and G.    | 135          | 83           |
| Adams, C. and S. J.                             | 153          | 91           | Allen, S. L.                                       | 602          | 378          | Armstrong, J.           | 378          | 230          |
| Adams, R. N.                                    | 209          | 127          | Allen, T. M.                                       | 880          | 551          | Armstrong, R. V. J.     | 707          | 455          |
| Adams, J.                                       | 211          | 128          | Allen, L. S., Brown, M. P.,<br>and Mouthrop, C. W. | 1028         | 632          | Arnett, W. D.           | 605          | 591          |
| Adams, W.                                       | 370          | 227          |  |              |              | Arnold, J. H.           | 84           | 56           |
| Adams, A. B.                                    | 373          | 228          | Allen, D. M.                                       | 677          | 656          | Arnold, A. C.           | 373          | 228          |
| Adams, S.                                       | 449          | 275          | Alley, J. J.                                       | 30           | 20           | Arlington, W. J.        | 866          | 547          |
| Adams, W.                                       | 618          | 358          | Alley, J. J.                                       | 31           | 20           | Atherton, G. M.         | 572          | 341          |
| Adams, L.                                       | 800          | 517          | Alling, P.   | 379          | 230          | Atkinson, W. B.         | 443          | 276          |
| Adams, J.                                       | 830          | 538          | Almy, D.   | 115          | 75           | Atkinson, C.            | 1085         | 658          |
| Adamson, R.                                     | 658          | 376          | Altenderfer, P. and B.                             | 621          | 573          | Attcberry, W. W.        | 75           | 53           |
| Adecock, J. J., Lumpkin,<br>G. J., and White M. | 1087         | 659          | Altick, W.   | 210          | 127          | Atwater, J. B.          | 765          | 593          |
| Addams, A.                                      | 158          | 94           | Anderson, J. S. and Cooley,<br>J. B.               | 315          | 100          | Aughe, F.               | 118          | 70           |
| Agee, G. S.                                     | 905          | 500          | Anderson, C.                                       | 715          | 458          | Aughe, S. S.            | 616          | 357          |
| Ahearn, J.                                      | 349          | 212          | Anderson, C. and Oliver, J.                        | 715          | 458          | Augspurger, J.          | 117          | 88           |
| Aiken, H.                                       | 304          | 185          | Anderson, L. G.                                    | 975          | 505          | Austin, M. J.           | 325          | 194          |
| Akins, H. S.                                    | 920          | 576          | Andrews, W. J.                                     | 207          | 126          | Austin, H. W. and Shaw, |              |              |
| Akins, H. S.                                    | 930          | 577          | Andrews, W. J.                                     | 779          | 510          | Austin, R. and Gardner, | 70           | 52           |
| Aland, S.                                       | 1002         | 651          | Andrews, L. G. and                                 |              |              | W. H.                   | 300          | 215          |
| Albert, E.                                      | 514          | 321          | Riviere, A.  | 877          | 550          | Austin, J.              | 804          | 519          |
| Allen, F. W.                                    | 60           | 51           | Andrus, F.   | 404          | 292          | Austin, J.              | 817          | 524          |
| Alden, R.                                       | 343          | 210          | Angmar, E. H.                                      | 742          | 485          | Avery, G. D.            | 491          | 309          |
| Aldrich, A.                                     | 151          | 90           | Ainschut, A., Seibel, A., and                      |              |              | Avery, B. F.            | 522          | 324          |
| Aldrich, A.                                     | 154          | 91           | Weber, M.  | 950          | 584          | Avery, B. F.            | 531          | 326          |

**GENERAL ALPHABETICAL INDEX.**

| <i>Plate</i>   | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>              | <i>Plate</i> | <i>Claim</i> |
|--|--------------|--------------|---------------------------|--------------|--------------|
| Avery, B. F.   | 559          | 330          | Bartlett, E. S.           | 306          | 186          |
| Avery, G. C.   | 901          | 600          | Bartlett, G.              | 513          | 320          |
| Axford, W.   | 79           | 54           | " " (R)                   | 513          | 320          |
| Azbill, R. J.  | 475          | 205          | Barton, A.                | 928          | 576          |
| Babbitt, W. H.   | 924          | 575          | Barton, W. L.             | 908          | 502          |
| Babbitt, W. H.   | 927          | 576          | Bass, E.                  | 852          | 541          |
| Babcock, E. H., Whiting,<br>J. C., and Chamberlain,<br>O. H. | 20           | 19           | Bassett, J. M.            | 800          | 554          |
| Babcock, E. H., Whiting,<br>J. C., and Chamberlain,<br>O. H. | 20           | 19           | Bassett, J. M.            | 893          | 556          |
| Babcock, W. S.   | 414          | 248          | Batchelder, W. J. M. and  | 1002         | 621          |
| Bacon, J.  | 424          | 200          | Leiber, C.                | 43           | 34           |
| Bacon, H.  | 1055         | 649          | Batcheller, W. J. M.      | 344          | 210          |
| Bader, J. St.  | 804          | 540          | Batcheller, A. F.         | 701          | 514          |
| Badger, N.   | 701          | 502          | Batcheller, A. F.         | 793          | 515          |
| Badlam, E.   | 708          | 504          | Bateman, E.               | 101          | 64           |
| Bagley, H.   | 444          | 276          | Bates, F. L.              | 223          | 133          |
| Bagnall, W.  | 878          | 551          | Bates, I. S.              | 302          | 216          |
| Bagwell, P. A.   | 154          | 92           | Bates, C.                 | 669          | 382          |
| Bailey, C. and Bagby, G. K.                                  | 223          | 133          | Bates, C.                 | 602          | 352          |
| Bailey, F. L.  | 357          | 214          | Bates, L. M.              | 607          | 451          |
| Baker, J. W.   | 129          | 80           | Baume, S. C.              | 819          | 525          |
| Baker, H. F.   | 435          | 273          | Baughman, S. P.           | 100          | 64           |
| Baker, H. F.   | 442          | 275          | Baughn, S. C.             | 875          | 550          |
| Baker, N.  | 408          | 315          | Bazemore, W. T.           | 200          | 123          |
| Baker, H. F.   | 520          | 323          | Beach, E. O.              | 39           | 20           |
| Baker, D. C.   | 187          | 112          | Beach, L. L.              | 383          | 231          |
| Baker, I. T.   | 321          | 192          | Beach, W.                 | 404          | 312          |
| Baker, B. F.   | 948          | 584          | Beach, W.                 | 601          | 449          |
| Bakes, F. G.   | 930          | 579          | Beal, F. R. and Clark, S. | 145          | 87           |
| Baldwin, J. I.   | 74           | 53           | Beale, T.                 | 374          | 220          |
| Baldwin, T. B.   | 88           | 58           | Beall, Z. M.              | 1060         | 650          |
| Baldwin, P. O.   | 885          | 232          | Beals, J. S.              | 113          | 74           |
| Bales, M.  | 431          | 271          | Beals, J. S.              | 116          | 75           |
| " " A. L.  | 431          | 271          | Beam, H. T.               | 570          | 340          |
| Ball, A.   | 26           | 18           | Beard, G. W.              | 264          | 166          |
| Ball, A.   | 32           | 21           | Beard, G. W.              | 280          | 171          |
| Ball, E. Jr.   | 26           | 18           | Beard, G. A.              | 406          | 293          |
| Ball, W. J.  | 29           | 10           | Beard, M. M. and Purcell, |              |              |
| Ball, John   | 72           | 52           | G. W.                     | 888          | 554          |
| Ball, J.   | 72           | 52           | Beard, M. M.              | 905          | 561          |
| Ball, E.   | 511          | 320          | Beard, J.                 | 1032         | 633          |
| Ball, J.   | 511          | 320          | Beaumont, L. B.           | 363          | 217          |
| Ball, E.   | 518          | 322          | Beaumont, D.              | 1031         | 632          |
| Ball, E.   | 547          | 332          | Beckett, S.               | 466          | 293          |
| Ball, A.   | 670          | 382          | Beckett, W.               | 1021         | 620          |
| Ball, A.   | 675          | 385          | Beckwith, P. D.           | 117          | 76           |
| Ball, J.   | 577          | 343          | Bednar, J. F.             | 97           | 62           |
| Ball, J.   | 578          | 340          | Beebe, H. C.              | 898          | 258          |
| Ball, E. Jr.   | 558          | 335          | Beecroft, N. D.           | 388          | 233          |
| Ballard, A. S.   | 307          | 187          | Beets, D.                 | 908          | 562          |
| Ballard, J. and Magee, T. J.                                 | 310          | 188          | Beggs, J. R.              | 544          | 331          |
| Ballard, P.  | 313          | 180          | Begon, L.                 | 480          | 297          |
| Ballard, H. H. and Mc-<br>Clure, H.                          | 445          | 276          | Begon, L.                 | 661          | 378          |
| Ballard, U.  | 1006         | 671          | Beidler, C.               | 541          | 329          |
| Baltzer, C. H.   | 470          | 206          | Beidler, C.               | 551          | 333          |
| Banks, G. W.   | 235          | 139          | Belchambers, A.           | 9            | 4            |
| Banks, J.  | 840          | 538          | Bell, N. and Winfield, H. | 278          | 170          |
| Banks, R. W.   | 881          | 552          | Bell, J. C.               | 350          | 212          |
| Banks, J.  | 1056         | 649          | Bell, F. R.               | 477          | 206          |
| Banworth, W.   | 1095         | 670          | Bell, F. R.               | 477          | 206          |
| Barager, C. F.   | 933          | 577          | Bell, W. N.               | 628          | 303          |
| Barber, P.   | 343          | 210          | Bellinger, E. C.          | 995          | 619          |
| Barber, F.   | 862          | 555          | Belmont, H.               | 782          | 511          |
| Bard, E. M.  | 463          | 292          | Belt, A. C.               | 560          | 336          |
| Barger, N. S.  | 660          | 382          | Bement, E.                | 68           | 50           |
| Barnaby, A.  | 923          | 574          | Bement, A. O.             | 151          | 90           |
| Barnett, J. R.   | 449          | 278          | Bement, E.                | 695          | 451          |
| Barnett, J. W. and Hobbs,<br>T. J.                           | 963          | 590          | Benedict, L. A.           | 879          | 551          |
| Barr, J. H.  | 712          | 457          | Benkelman, A.             | 537          | 328          |
| Barrowman, M.  | 306          | 186          | Bennett, H. L.            | 183          | 111          |
| Barrows, F. A.   | 962          | 589          | Bennett, W.               | 345          | 510          |
| Barrows, W. A.   | 1095         | 671          | Bennett, H. R. and D. E.  | 900          | 558          |
| Barry, A. P.   | 276          | 169          | Benson, B. S.             | 1031         | 633          |
| Barry, M.  | 612          | 356          | Benson, B. S.             | 1034         | 634          |
| Bartholomew, C.  | 315          | 190          | Benson, B. S.             | 1039         | 636          |
| Bartlett, C. K.  | 302          | 185          | Benson, B. S.             | 1040         | 638          |
| Bartlett, C. K.  | 302          | 185          | Benton, J. L.             | 424          | 266          |

*GENERAL ALPHABETICAL INDEX*

| <i>Plate Claim</i>                             | <i>Plate Claim</i> | <i>Plate Claim</i> |
|--|--------------------|--------------------|
| Borum, S. R. and McClean,<br>W.                | 840                | 538                |
| Bostwick, E. E.                                | 818                | 524                |
| Bostwick, G. B.                                | 1038               | 636                |
| Bouchet, P.                                    | 962                | 589                |
| Boul, C.                                       | 1086               | 650                |
| Bourne, E.                                     | 780                | 510                |
| Bourne, E.                                     | 1081               | 657                |
| Bowen, J. D.                                   | 423                | 259                |
| Bowen, J. D.                                   | 636                | 366                |
| Bowen, H. W.                                   | 783                | 511                |
| Bowen, H. R. and Robnett,<br>L. D.             | 1073               | 654                |
| Bowers, A. Griggs, J. H.<br>and Wilson, J.     | 438                | 274                |
| Bowers, M. M.                                  | 705                | 454                |
| " " "  | 705                | 454                |
| " " "(R)                                       | 706                | 455                |
| Bowers, M. M.                                  | 710                | 456                |
| Bowers, M. M.                                  | 714                | 458                |
| Bowlds, F. H.                                  | 872                | 548                |
| Bowling, B. F.                                 | 272                | 168                |
| Bowling, J. S. and R.                          | 880                | 554                |
| Bowman, L. D.                                  | 241                | 143                |
| Bowsler, N. P.                                 | 155                | 92                 |
| Bowsler, N. P.                                 | 710                | 457                |
| Boyle, T. W.                                   | 891                | 555                |
| Boynton, J.                                    | 23                 | 17                 |
| Bradford, W.                                   | 882                | 552                |
| Bradford, W. B.                                | 1076               | 655                |
| Bradley, B. C.                                 | 161                | 96                 |
| Bradley, B. C.                                 | 476                | 296                |
| Bradley, B. C.                                 | 619                | 358                |
| Bradley, J.                                    | 1006               | 652                |
| Brain, G.                                      | 345                | 210                |
| Branly, J.                                     | 288                | 173                |
| Braman, F. P.                                  | 986                | 607                |
| Breedon, C. C. and Wheeler,<br>O. T.           | 800                | 517                |
| Brelsford, M. C.                               | 855                | 543                |
| Brenner, A. W. and Fraser,<br>J.               | 247                | 146                |
| Brewer, G. T.                                  | 562                | 337                |
| Brewster, I.                                   | 925                | 575                |
| Bridges, E. C. L.                              | 235                | 139                |
| Briggs, B. B.                                  | 436                | 273                |
| " " "(A. L.)                                   | 436                | 273                |
| Briggs, H.                                     | 720                | 470                |
| Brimingham, G. B.                              | 1080               | 657                |
| Brinly, T. E. C.                               | 28                 | 19                 |
| Brinly, T. E. C.                               | 76                 | 54                 |
| Brinly, T. E. C.                               | 274                | 169                |
| Brinly, T. E. C.                               | 536                | 328                |
| Brinly, T. E. C. and Dodge,<br>J. G.           | 542                | 330                |
| Brinly, T. E. C.                               | 551                | 333                |
| " " " (R)                                      | 551                | 333                |
| Brinly, T. E. C.                               | 559                | 336                |
| Brinly, T. E. C.                               | 570                | 343                |
| Brinly, T. E. C.                               | 582                | 345                |
| Brinly, T. E. C.                               | 588                | 348                |
| Brinly, T. E. C.                               | 589                | 348                |
| Brinly, T. E. C.                               | 609                | 353                |
| Brinly, J. L.                                  | 603                | 379                |
| Brinly, T. E. C.                               | 865                | 547                |
| Brinly, T. E. C.                               | 985                | 607                |
| Brinly, T. F. C.                               | 1077               | 650                |
| Brinly, T. E. C.                               | 1089               | 660                |
| Brison, J.                                     | 78                 | 54                 |
| Bristol, T. C.                                 | 132                | 81                 |
| Britton, W.                                    | 593                | 340                |
| Brodnix, D. W. St.                             | 795                | 515                |
| Bronson, P. K.                                 | 606                | 451                |
| Brooks, J.                                     | 307                | 187                |
| Brooks, R. H.                                  | 846                | 540                |
| Brooks, C. C.                                  | 999                | 592                |
| Brott, G. E.                                   | 1032               | 633                |
| Brous, T. M.                                   | 622                | 360                |
| Brown, C. T.                                   | 8                  | 4                  |
| Brown, T. J.                                   | 236                | 140                |
| Brown, S. E.                                   | 249                | 147                |
| Brown, D. F. and E. C.                         | 351                | 212                |
| Brown, W. P.                                   | 416                | 248                |
| Brown, R. A.                                   | 609                | 355                |
| Brown, J. B. and Pentreath,<br>J.              | 712                | 457                |
| Brown, W. P.                                   | 691                | 609                |
| Brown, E.                                      | 1037               | 635                |
| Browne, G.                                     | 363                | 216                |
| Bruce, J. B.                                   | 660                | 377                |
| Brutslike, F.                                  | 1042               | 638                |
| Bryan, J. P.                                   | 183                | 111                |
| Bryan, C. M.                                   | 464                | 202                |
| Bryan, F. C.                                   | 666                | 593                |
| Bryan, F. C.                                   | 495                | 313                |
| Bryant, W.                                     | 1055               | 649                |
| Buch, J.                                       | 495                | 313                |
| Buchanan, J. M.                                | 676                | 385                |
| Bucher, J. R.                                  | 708                | 456                |
| Buckingham, C. P.                              | 31                 | 20                 |
| Buckley, R. C. and Harms,                      |                    |                    |
| Bump, F. E. and Gear, J.                       | 27                 | 18                 |
| W.   | 29                 | 19                 |
| Burbridge, C. H.                               | 267                | 166                |
| Burch, T. W.                                   | 213                | 129                |
| Burch, N.                                      | 605                | 353                |
| Burch, L. D.                                   | 609                | 452                |
| Burch, J. W.                                   | 778                | 509                |
| Burch, L. D.                                   | 931                | 577                |
| Burch, L. D.                                   | 932                | 577                |
| Burdin, L. E.                                  | 27                 | 18                 |
| Burdin, L. E.                                  | 723                | 469                |
| Burdin, L. E.                                  | 1071               | 654                |
| Burgess, W. D. and Zeigler,<br>G. W.           | 893                | 546                |
| Burgess, T. J.                                 | 950                | 584                |
| Burghard, J. H.                                | 415                | 248                |
| Burlyte, T. J.                                 | 309                | 187                |
| Burke, J. M.                                   | 843                | 539                |
| Burlingame, A. H.                              | 149                | 89                 |
| Burlingame, A. H.                              | 155                | 92                 |
| Burnham, T. C.                                 | 232                | 137                |
| Burnham, T. C.                                 | 227                | 135                |
| Burnham, T. C.                                 | 230                | 137                |
| Burnham, W. H. II. and<br>Pierce, S. B.        | 1061               | 650                |
| Burns, P. H. and McElhaney,<br>W. G.           | 642                | 369                |
| Burns, P.                                      | 581                | 345                |
| Burr, G. W.                                    | 49                 | 37                 |
| Burrall, T. D.                                 | 421                | 259                |
| Burridge, T. H.                                | 1005               | 622                |
| Burtless, M. E.                                | 315                | 190                |
| Burton, O. F. and Hoit, L.                     |                    |                    |
| Burton, W. V.                                  | 499                | 203                |
| Busch, W.                                      | 519                | 323                |
| Bussell, E. T.                                 | 242                | 143                |
| Bussell, E. T.                                 | 380                | 232                |
| Bussell, E. T.                                 | 772                | 506                |
| Bussell, E. T.                                 | 755                | 500                |
| Bussell, E. T.                                 | 783                | 511                |
| Bussell, E. T.                                 | 784                | 512                |
| Bussey, W. C.                                  | 304                | 185                |
| Butler, M.                                     | 133                | 82                 |
| Butler, M.                                     | 473                | 295                |
| Butler, M.                                     | 650                | 376                |
| Butler, J.                                     | 946                | 583                |
| Butterfield, J. C.                             | 27                 | 18                 |
| Byrd, J. A.                                    | 534                | 327                |
| Byrns, P.                                      | 381                | 231                |
| Cadenhead, J. J.                               | 523                | 324                |
| Cage, H. B.                                    | 214                | 129                |
| Gagwin, F. L.                                  | 775                | 508                |
| Cahill, M.                                     |                    |                    |
| Caldwell, S. N.                                | 318                | 191                |
| Caldwell, F. M.                                | 700                | 453                |
| Caldwell, J. R. and Her-<br>ren, J. W.         |                    |                    |
| Call, M.                                       |                    |                    |
| Calvin, L. H. and Wallace,<br>J.               | 705                | 454                |
| Cameron, J. C.                                 | 275                | 169                |
| Cameron, J. F.                                 | 342                | 209                |
| Cameron, W. F.                                 | 716                | 459                |
| Cameron, J. F.                                 | 1059               | 650                |
| Camp, S. N.                                    | 239                | 139                |
| Campbell, J. J.                                | 451                | 279                |
| Cannaday, C.                                   | 203                | 124                |
| Centerberry, S.                                | 535                | 328                |
| Canty, T.                                      | 476                | 296                |
| Capheart, T.                                   | 166                | 99                 |
| Carl, J. and Newell, G.                        | 503                | 317                |
| Carleton, L.                                   | 1071               | 654                |
| Carlson, T.                                    | 651                | 373                |
| Carman, A.                                     | 63                 | 49                 |
| Carnes, S.                                     | 892                | 555                |
| Carpenter, J. C.                               | 479                | 297                |
| Cartington, H. L.                              | 7                  | 3                  |
| Carrington, J.                                 | 432                | 271                |
| Carraway, L. W.                                | 286                | 173                |
| Carson, J. B.                                  | 240                | 142                |
| Carson, A.                                     | 859                | 544                |
| Carstens, N. and C.                            | 378                | 230                |
| Cartwright, E.                                 | 475                | 295                |
| Cary, F. F.                                    | 725                | 470                |
| Case, J.                                       | 430                | 271                |
| Case, J. L.                                    | 603                | 379                |
| Casebeer, S.                                   | 114                | 74                 |
| Casey, C.                                      | 265                | 166                |
| Cassidy, R., Lamb, T. B.<br>and Vaughan, C. L. | 627                | 363                |
| Cates, J. G.                                   | 1008               | 672                |
| Cato, W. W.                                    | 874                | 549                |
| Cedarland, S. N.                               | 730                | 472                |
| Chafee, V. M.                                  | 533                | 327                |
| Chafee, V. M.                                  | 615                | 357                |
| Chamberlain, W. C.                             | 33                 | 21                 |
| Chamberlain, W. H.                             | 773                | 507                |
| Chamherlin, G.                                 | 448                | 278                |
| Washam, J.                                     | 210                | 127                |
| Chambers, C. F.                                | 594                | 349                |
| Chandler, B. F.                                | 709                | 456                |
| Chandler, M.                                   | 742                | 485                |
| " " "(R)                                       | 742                | 485                |
| Chandler, M.                                   | 746                | 487                |
| Chapin, T. F.                                  | 520                | 323                |
| Chapman, L.                                    | 158                | 94                 |
| Chapman, J. H.                                 | 380                | 230                |
| Chapman, T.                                    | 659                | 377                |
| Chapman, L.                                    | 659                | 377                |
| Chapman, L.                                    | 659                | 377                |
| Chapman, A. B.                                 | 724                | 470                |
| Chapman, L.                                    | 945                | 583                |
| Chapman, L.                                    | 947                | 583                |
| Chapman, L.                                    | 966                | 591                |
| Chapman, L.                                    | 997                | 592                |
| Chase, J. F.                                   | 89                 | 58                 |
| Chase, J. F.                                   | 92                 | 60                 |
| Chase, N. C. and Saunders,<br>C. W.            | 370                | 227                |
| Chase, W. L.                                   | 926                | 575                |
| Chase, M. L.                                   | 926                | 575                |
| Chateau, L. L.                                 | 1061               | 650                |
| Chenoweth, R. B.                               | 491                | 309                |
| Chenoweth, R. C.                               | 497                | 314                |
| Chenoweth, J.                                  | 779                | 510                |
| Chevalier, E.                                  | 924                | 361                |
| Chichester, H. S.                              | 240                | 329                |
| Christ, A.                                     | 421                | 259                |

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| <i>Plate</i>                        | <i>Claim</i> |     | <i>Plate</i>                    | <i>Claim</i> |     | <i>Plate</i>                         | <i>Claim</i> |     |
|-------------------------------------|--------------|-----|---------------------------------|--------------|-----|--------------------------------------|--------------|-----|
| Christman, A. G.                    | 672          | 383 | Cook, R.                        | 344          | 210 | Curryer, J. C. and W. F.             | 355          | 214 |
| Christman, A. G.                    | 660          | 377 | Cook, I. and Bever, J. T.       | 531          | 326 | Curtis, S.                           | 572          | 341 |
| Christy, J.                         | 393          | 234 | Cook, E. S.                     | 602          | 352 | Curtis, J.                           | 1012         | 626 |
| Chubb, E. A.                        | 123          | 78  | Cook, W. H.                     | 708          | 456 | Curtis, J. and Rowland, C.           | 113          | 74  |
| Chubb, A. L.                        | 158          | 93  | Cooley, W.                      | 554          | 334 | Custer, W.                           | 347          | 211 |
| Chubb, A. L.                        | 661          | 378 | Cooley, S.                      | 597          | 350 | Custer, J.                           | 1068         | 653 |
| Church, M. C.                       | 101          | 65  | Coombs, W. G.                   | 48           | 36  | Cutcliffe, E.                        | 1080         | 657 |
| Clarke, G. C.                       | 42           | 34  | Coon, J. H.                     | 793          | 514 | Dahl, M. K.                          | 583          | 346 |
| Clarke, G. C.                       | 53           | 38  | Coonley, J. C. and Buckius,     |              |     | Dahl, A. K.                          | 609          | 355 |
| Clark, W. R.                        | 311          | 188 | A. O.                           | 90           | 56  | Dahlman, C. O.                       | 374          | 474 |
| Clark, G.                           | 320          | 192 | Cooper, G. W.                   | 609          | 452 | Dailey, A. A.                        | 79           | 54  |
| Clark, J. A.                        | 323          | 103 | Cooper, G. W.                   | 774          | 507 | Dailey, S. H.                        | 80           | 55  |
| Clarke, E.                          | 383          | 231 | Cooper, G. W.                   | 838          | 538 | Dale, T.                             | 220          | 132 |
| Clark, W. O.                        | 393          | 234 | Cooper, G. W.                   | 853          | 542 | Daniel, C.                           | 967          | 589 |
| Clark, J. M.                        | 417          | 249 | Cooper, I.                      | 854          | 542 | Daniel, C.                           | 963          | 590 |
| Clark, J. and Vost, G. W. N.        | 463          | 292 | Cooper, M.                      | 903          | 500 | Daniels, C. J.                       | 804          | 519 |
| Clark, E. C.                        | 535          | 328 | " " (R)                         | 903          | 500 | Daniels, W. H.                       | 988          | 608 |
| Clark, E. C.                        | 846          | 540 | Cooper, J. B.                   | 1060         | 650 | Darby, J. G.                         | 5            | 2   |
| Clark, J. M.                        | 860          | 544 | Corchnan, A. J.                 | 823          | 526 | Darby, T. C.                         | 1036         | 635 |
| Clark, T. J. and G. M.              | 876          | 550 | Coreth, R.                      | 478          | 297 | Darden, S. C.                        | 213          | 129 |
| Clatton, T.                         | 301          | 185 | Cornell, T. J.                  | 42           | 34  | Darrow, G. P.                        | 69           | 51  |
| Clayton, J.                         | 152          | 90  | Cornell, E.                     | 429          | 271 | Davidson, E.                         | 530          | 326 |
| Clayton, J.                         | 159          | 94  | Cornoyer, O. J.                 | 165          | 98  | Davies, J. and Skinner, C. C.        | 324          | 193 |
| Cleasby, G.                         | 508          | 319 | Coston, J.                      | 225          | 134 | Davies, O. T.                        | 327          | 195 |
| Clemens, S. A.                      | 447          | 277 | Coston, J.                      | 384          | 232 | Davis, A. M.                         | 137          | 84  |
| Clements, G. M.                     | 743          | 486 | Cotton, T. L.                   | 1070         | 653 | Davis, M. E.                         | 214          | 130 |
| Cleveland, H.                       | 302          | 185 | Cotton, T. L.                   | 1070         | 656 | Davis, C. C. and A. G.               | 240          | 142 |
| Clifton, J.                         | 1073         | 654 | Cottman, T.                     | 549          | 333 | Davis, C. C. and Mercer, W. H.       | 280          | 174 |
| Cline, W., Jr.                      | 316          | 190 | Couch, W. A.                    | 414          | 248 | Davis, L. Jr.                        | 361          | 216 |
| Clinger, P. S.                      | 371          | 227 | Cowing, H.                      | 995          | 619 | Davis, A. B.                         | 471          | 294 |
| Clore, W.                           | 142          | 86  | Cowley, W. A.                   | 960          | 588 | Davis, G.                            | 493          | 310 |
| Close, J. H.                        | 480          | 297 | Cowley, W. A.                   | 973          | 595 | Davis, J. W.                         | 662          | 379 |
| Cloud, J. C.                        | 516          | 321 | Cox, T. S.                      | 434          | 272 | Davis, F.                            | 846          | 540 |
| Clough, A. S.                       | 970          | 593 | Cox, C. G.                      | 617          | 357 | Davis, L. H. and Aycock, L.          | 885          | 553 |
| Cluckner, J.                        | 355          | 214 | Cox, A. G. and Johnson,         |              |     | Davis, V. R.                         | 895          | 557 |
| Cobb, J. M.                         | 266          | 166 | R. A.                           | 906          | 561 | Davis, B. and Scroggin, J. M.        | 1058         | 649 |
| Cobb, J. M.                         | 279          | 170 | Cox, H.                         | 925          | 575 | Dawdy, L. J.                         | 388          | 233 |
| Cobb, J. M.                         | 876          | 550 | Crandall, C. U., J. H. and      |              |     | Dawson, W. W.                        | 640          | 368 |
| Cobb, J. M.                         | 1059         | 650 | Crandall, C. U., J. H. and      |              |     | Dawson, W. J.                        | 778          | 509 |
| Cochran, R. F.                      | 679          | 387 | Hawkins, A.                     | 435          | 273 | Day, A.                              | 273          | 168 |
| Cockley, D.                         | 31           | 33  | Crane, J. C.                    | 761          | 502 | Day, D. C.                           | 944          | 583 |
| Cochskatt, J. G.                    | 31           | 20  | Cravath, M. A. and J. M.        | 771          | 506 | Deal, J. J. and Hobbs, S.            | 51           | 37  |
| Coddington, R. and Mc Call, D.      | 933          | 577 | Carfts, A. and Weeks, E.        | 752          | 499 | Deane, G. S.                         | 119          | 77  |
| Coe, O.                             | 1002         | 650 | Crawford, J. M.                 | 374          | 228 | Dearth, W. L. and Ronde, bush, G. P. | 353          | 213 |
| Coggeshall, W.                      | 542          | 330 | T. W.                           | 432          | 272 | Deats, J.                            | 495          | 313 |
| Cogswell, C. A.                     | 346          | 211 | Creamer, J.                     | 448          | 277 | Deats, J. " (R)                      | 495          | 313 |
| Coil, T. G.                         | 452          | 279 | Crenshaw, J. B.                 | 657          | 370 | Deats, J.                            | 500          | 316 |
| Colborn, L. H.                      | 769          | 505 | Creuzbaur, R.                   | 1023         | 630 | Deats, J.                            | 502          | 317 |
| Cole, G. W.                         | 381          | 231 | Crichton, W.                    | 200          | 123 | Decelle, M.                          | 783          | 511 |
| Cole, J. and Wall, A. L. O.         | 429          | 571 | Chritchett, M. H.               | 450          | 278 | Decker, N. C.                        | 13           | 6   |
| Cole, G. W.                         | 508          | 339 | Chritchett, M. H.               | 451          | 279 | Ducker, P. H.                        | 720          | 472 |
| Cole, J. L.                         | 703          | 503 | Crockett, R. S.                 | 1072         | 654 | Decre, J.                            | 547          | 332 |
| Coles, J.                           | 7            | 3   | Crotot, C.                      | 373          | 228 | Defenbaugh, A.                       | 430          | 271 |
| Collett, W. H.                      | 141          | 85  | Crofut, C.                      | 393          | 234 | DeForce, S. A. and McCon nell, W. V. | 230          | 141 |
| Collins, I. W. and Wilkinson, R. V. | 206          | 125 | Cromwell, J. and H. F.          | 504          | 318 | Delano, H.                           | 111          | 73  |
| Collins, S.                         | 1091         | 669 | Crook, C. T. and Hoffman, L. J. | 532          | 327 | Delano, C.                           | 922          | 573 |
| Colvin, B.                          | 400          | 238 | T. E. and Carey, E.             | 898          | 258 | Delavigne, J. C.                     | 1010         | 628 |
| Colwell, W. S.                      | 468          | 293 | Crossby, W. E. and Carey, E.    |              |     | Delfer, F. L.                        | 324          | 193 |
| Colwell, W. S.                      | 470          | 294 | A.                              | 821          | 526 | Delfer, F. L.                        | 325          | 194 |
| Combs, A. J.                        | 184          | 111 | Crossley, C. M.                 | 895          | 556 | DeLong, G. A.                        | 801          | 555 |
| Commings, R.                        | 303          | 185 | Cullen, J. M.                   | 261          | 105 | DeLong, G. A.                        | 809          | 558 |
| Comstock, W. G.                     | 380          | 230 | Culver, M. A.                   | 103          | 65  | Dement, J.                           | 343          | 209 |
| Comstock, C.                        | 759          | 501 | Culver, J. M.                   | 380          | 230 | Dement, J.                           | 546          | 332 |
| Comstock, C.                        | 762          | 502 | Culver, D.                      | 745          | 487 | Denise, S. T.                        | 45           | 35  |
| Comstock, C.                        | 765          | 503 | Culver, D.                      | 872          | 549 | Denise, S. T.                        | 570          | 341 |
| Conaway, W. A.                      | 708          | 456 | Culver, F. and J. H.            | 955          | 586 | Dennett, J. B.                       | 550          | 333 |
| Conaway, W. H.                      | 950          | 584 | Cuming, T. Jr.                  | 702          | 453 | Dennis, P.                           | 841          | 538 |
| Condo, J.                           | 667          | 381 | Cummings, J. G.                 | 525          | 325 | Dennis, P.                           | 841          | 538 |
| Cone, M. D. and Douglass, A. N.     | 375          | 229 | Cummings, J. G. and J. R.       | 575          | 343 | Dennis, P.                           | 856          | 543 |
| Cone, F. C.                         | 777          | 509 | Cunningham, J. T.               | 100          | 64  | Dennis, S. Jr.                       | 929          | 576 |
| Conklin, J. H.                      | 514          | 321 | Cunningham, G. W.               | 537          | 328 | Densmore, J.                         | 143          | 86  |
| Conklin, J. H.                      | 691          | 449 | Curkendall, G.                  | 124          | 79  | Densmore, J.                         | 772          | 506 |
| Connelly, W. E.                     | 965          | 591 | Currier, H. A.                  | 161          | 95  |                                      |              |     |
| Conner, L. H.                       | 901          | 559 | Curry, C. J.                    | 246          | 145 |                                      |              |     |
| Conrad, S. A.                       | 390          | 233 | Curry, B. J.                    | 253          | 150 |                                      |              |     |
|                                     |              |     | Curryer, J. C. and W. F.        | 348          | 211 |                                      |              |     |

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|---|-------|-------|-------------------------------|-------|-------|
| Dewey, G. W.                              | 67    | 50    | Eaton, J. M.                  | 88    | 58    |
| Dever, J. P.                              | 256   | 152   | Eaton, E. C.                  | 167   | 64    |
| Devreux, C. P.                            | 45    | 35    | Eavenson, J. L.               | 650   | 372   |
| Dexheimer, J. P.                          | 951   | 585   | Eavenson, J. L.               | 657   | 376   |
| DeVampert, T. J.                          | 694   | 450   | Eaves, J. B.                  | 234   | 139   |
| Dice, W.                                  | 710   | 450   | Eberle, L. Sr., F. and L.     |       |       |
| Dick, J. M.                               | 543   | 330   | Eby, J. M.                    | 643   | 360   |
| Dickerson, W. and Strain,<br>W. H.        | 806   | 557   | Eccles, W. M.                 | 859   | 544   |
| Dickert, C. P. and Heller,<br>E. McD.     | 252   | 140   | Eckles, H. P.                 | 774   | 507   |
| Dickie, R. and Johnston,<br>H. K.         | 585   | 346   | Eddy, W.                      | 79    | 51    |
| Dickson, J. H.                            | 2     | 1     | Eddy, H. D.                   | 309   | 237   |
| Dickson, J.                               | 528   | 325   | Eddy, H. F.                   | 666   | 380   |
| Dickson, A.                               | 1057  | 649   | Edmonds, T.                   | 702   | 453   |
| Dietsch, E.                               | 588   | 348   | Edwards, W. H.                | 89    | 59    |
| Dietz, F.                                 | 186   | 112   | Edwards, C. D.                | 320   | 160   |
| Dillenback, D.                            | 127   | 80    | Edwards, A. N.                | 320   | 160   |
| Dills, O. P.                              | 69    | 51    | Fischer, P.                   | 500   | 310   |
| Durst, A. L.                              | 358   | 215   | Flock, J.                     | 664   | 380   |
| Diyellus, H. T. and Bras-<br>field, J. S. | 449   | 278   | Floyd, A.                     | 926   | 575   |
| Dock, J. F.                               | 52    | 38    | Floyd, D.                     | 931   | 577   |
| Doddridge, T. M.                          | 351   | 212   | Flynn, J. C.                  | 790   | 513   |
| Dodge, G.                                 | 1062  | 670   | Filis, J. F. and Robinson, C. | 94    | 91    |
| Dodge, G.                                 | 116   | 75    | Filis, M.                     | 953   | 585   |
| Dodge, J.                                 | 131   | 81    | Filton, C. T.                 | 787   | 513   |
| Dodge, G.                                 | 153   | 91    | Filis, C. S.                  | 97    | 62    |
| Dodge, T. H.                              | 341   | 269   | Filmer, C. R.                 | 71    | 52    |
| Dodge, J. G.                              | 501   | 337   | Filmer, A.                    | 433   | 272   |
| Dodge, G.                                 | 650   | 372   | Filton, C. A.                 | 434   | 272   |
| " " (R)                                   | 950   | 373   | Filton, C. A.                 | 559   | 330   |
| Dodsworth, T. C.                          | 41    | 5     | Filmer, J. H.                 | 40    | 55    |
| Doe, A.                                   | 928   | 576   | Filmer, J. H.                 | 444   | 276   |
| Dolahan, J.                               | 498   | 315   | " " (R)                       | 434   | 276   |
| Dollahan, C. T.                           | 227   | 135   | Fimerson, R.                  | 134   | 82    |
| Domscke, C.                               | 482   | 298   | Fimerson, C. W.               | 371   | 227   |
| Donnelly, W.                              | 4     | 2     | Fimerson, B. K.               | 937   | 307   |
| Doolittle, Z. and Crowder,<br>A. M.       | 211   | 128   | Fimery, G. and Wilson, A.     |       |       |
| Dormon, J. M.                             | 900   | 558   | C.                            | 531   | 320   |
| Doty, W. H. H.                            | 873   | 549   | Finnerty, E.                  | 342   | 210   |
| Dougherty, J. C.                          | 344   | 210   | Foote, E.                     | 213   | 120   |
| Douglas, C. B.                            | 219   | 131   | English, E. O. and Whyte,     |       |       |
| Douglass, J. T.                           | 362   | 210   | R.                            | 478   | 266   |
| Dover, S. B.                              | 1687  | 650   | Fippes, A. F.                 | 869   | 548   |
| Dow, F.                                   | 75    | 53    | Fisk, G.                      | 65    | 40    |
| Dow, T. H. C.                             | 886   | 553   | Estes, H.                     | 99    | 62    |
| Dowler, J. W.                             | 396   | 235   | Estery, G.                    | 529   | 323   |
| Dowmunt, R. W.                            | 311   | 188   | Estes, C. E.                  | 286   | 172   |
| Downs, J. W.                              | 601   | 352   | Estes, W. A.                  | 729   | 472   |
| Dowzer, M. D.                             | 930   | 364   | Estes, W. A.                  | 739   | 472   |
| Draughton, R. L.                          | 214   | 130   | Estes, W. A.                  | 732   | 473   |
| Draughton, R. T.                          | 245   | 145   | Estes, W. A.                  | 733   | 473   |
| Dudley, J.                                | 495   | 313   | Euler, E. J.                  | 482   | 474   |
| Dugdale, J. K.                            | 372   | 228   | Eustace, M.                   | 229   | 268   |
| Dugdale, J. K.                            | 395   | 235   | Eustace, M., Kenman, J. and   |       |       |
| Dugdale, G. R. and Breed,<br>D.           | 617   | 357   | T.                            | 281   | 174   |
| Dugger, G. W.                             | 256   | 152   | Evans, E.                     | 64    | 40    |
| Duhing, C. F.                             | 103   | 65    | Evans, E.                     | 73    | 53    |
| Duncan, J. C.                             | 557   | 335   | Evans, W. D.                  | 239   | 137   |
| Dunn, J. D.                               | 214   | 130   | Evans, L. G.                  | 293   | 313   |
| Dunfee, H. B.                             | 573   | 342   | Evans, O. C.                  | 521   | 323   |
| Dunfee, H. B.                             | 580   | 345   | Evans, J. D.                  | 754   | 499   |
| " " (R)                                   | 581   | 345   | Evates, W. B.                 | 861   | 545   |
| Durfee, W. H.                             | 975   | 509   | Evates, J. W.                 | 1002  | 621   |
| Dutcher, J.                               | 593   | 317   | Evates, J. W.                 | 1030  | 632   |
| Duvall, F.                                | 384   | 231   | Evates, W. C.                 | 559   | 330   |
| Dyer, C. V.                               | 53    | 38    | Everbom, W. P.                | 1065  | 652   |
| Dyer, F. F.                               | 728   | 471   | Ewing, L.                     | 232   | 137   |
| " " (R)                                   | 728   | 171   | Ewings, R. H.                 | 932   | 577   |
| Dyer, C. V.                               | 730   | 472   | Ewings, O. G.                 | 202   | 105   |
| Dysard, J. W.                             | 1094  | 670   | Fyth, M.                      | 1017  | 628   |
| Earlywine, N.                             | 221   | 132   | Falkner, P.                   | 74    | 53    |
| Fairhart, M.                              | 265   | 166   | Farber, M. W.                 | 103   | 67    |
| Eastwood, E.                              | 126   | 80    | Farmer, A. H.                 | 144   | 87    |
| Eastwood, F.                              | 1092  | 670   | Farnsworth, J. L.             | 283   | 174   |

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|---|-------|-------|-----------------------------------|-------|-------|
| Fowler, W. R.                                       | 7     | 3     | Garrett, G.                       | 346   | 211   |
| Fowler, J.  | 549   | 333   | Garrett, C. and Gottman, T.       | 523   | 324   |
| Fowler, N. M.                                       | 964   | 591   | Garver, A. A.                     | 758   | 501   |
| Fowler, J., Jr.                                     | 1007  | 623   | Gates, W. A.                      | 262   | 105   |
| Fowler, J., Jr.                                     | 1007  | 623   | Gatling, J.                       | 199   | 123   |
| Fowler, J., Jr. and Greig, D.                       | 1007  | 623   | Gatling, R. J.                    | 205   | 124   |
| Fowler, J., Jr.                                     | 1009  | 624   | Gatling, R. J.                    | 758   | 501   |
| Fowler, J., Jr. and Worby, W.                       | 1009  | 624   | Gatling, R. J.                    | 701   | 502   |
| Fowler, J., Jr., Burton, R., Greig, D. and Head, J. | 1010  | 625   | Gatling, R. J.                    | 836   | 537   |
| Fowler, J., Jr.                                     | 1012  | 626   | Gatling, R. J.                    | 997   | 619   |
| Fowler, J., Jr., Worby, W. and Greig, D.            | 1013  | 626   | Gaunt, F.                         | 154   | 92    |
| Fowler, J., Jr., Greig, D. and Noddings, R.         | 1013  | 626   | Gautier, F.                       | 54    | 39    |
| Fowler, J.  | 1064  | 651   | Gavett, H. L. E.                  | 304   | 186   |
| Fox, J.   | 348   | 211   | Gay, G. B.                        | 286   | 172   |
| Foye, W. H.   | 792   | 514   | Gaylor, C. H. and Ayers, É. M.    | 622   | 360   |
| Foye, W. H.   | 796   | 515   | Gedney, G. W. B.                  | 757   | 500   |
| Foye, W. H.   | 1035  | 635   | Gehr, J.                          | 41    | 33    |
| Foye, W. H.   | 1035  | 634   | Genzly, J.                        | 142   | 85    |
| Frank, W.   | 545   | 331   | George, J.                        | 548   | 332   |
| Franklin, F. M.                                     | 574   | 342   | George, J.                        | 672   | 384   |
| Franklin, A.  | 581   | 345   | Gero, E. C. and Cooley, J. N.     | 700   | 452   |
| Franklin, F. M.                                     | 585   | 347   | Gibson, C.                        | 210   | 128   |
| Franklin, A. and F. M.                              | 587   | 347   | Gibbs, G.                         | 44    | 35    |
| Fraser, E. J.                                       | 770   | 505   | Gibbs, L.                         | 70    | 51    |
| Frazee, L. F.                                       | 782   | 511   | Gibbs, R.                         | 83    | 56    |
| Frederick, S. H.                                    | 74    | 53    | Gibbs, L.                         | 132   | 81    |
| Freeborn, W.  | 799   | 517   | Gibbs, M. L.                      | 132   | 81    |
| Freeman, I.   | 623   | 360   | Gibbs, M. L.                      | 151   | 99    |
| Freeman, J.   | 1083  | 658   | Gibbs, L.                         | 416   | 248   |
| French, C. M. and Fancher, W. H.                    | 24    | 17    | Gibbs, J.                         | 463   | 292   |
| French, W. and Prentice, J. W.                      | 392   | 234   | Gibbs, J.                         | 499   | 316   |
| French, C. M.                                       | 569   | 340   | Gibbs, L.                         | 550   | 333   |
| French, E. D.                                       | 887   | 554   | Gibbs, G.                         | 556   | 335   |
| Friberg, A.   | 412   | 247   | Gibbs, R.                         | 585   | 346   |
| Fromm, A. F.  | 9     | 4     | Gibbs, M. L.                      | 587   | 347   |
| Frost, L. C.  | 4     | 2     | " " (R)                           | 587   | 347   |
| Frye, J.  | 722   | 469   | Gibbs, M. L.                      | 594   | 350   |
| Fudge, J. M., Holmes, F. M. and McDonald, S.        | 454   | 280   | " " (R)                           | 595   | 350   |
| Fuller, M. H.                                       | 401   | 238   | Gibbs, L.                         | 646   | 370   |
| Fulk, C. E. and Good, J. J.                         | 952   | 585   | Gibbs, L.                         | 648   | 371   |
| Furnas, S.  | 327   | 195   | Gibbs, W. G. and Wikidal, L. P.   | 698   | 452   |
| Furst, C.   | 124   | 78    | Gibbs, M. L.                      | 703   | 453   |
| Fulton, D.  | 586   | 347   | Gibson, D. D.                     | 1024  | 630   |
| Gable, A. C.  | 140   | 85    | Gibson, R. F. and McDaniel, R. P. | 129   | 80    |
| Gaines, W. C.                                       | 519   | 131   | Gilbert, J. R.                    | 237   | 140   |
| Gaines, C. A.                                       | 263   | 105   | Giger, B.                         | 836   | 537   |
| Gaines, R. and Scott, M.                            | 468   | 293   | Gilbert, J. R.                    | 100   | 64    |
| Gaines, C.  | 879   | 551   | Gilbert, J. W.                    | 244   | 144   |
| Gale, H.  | 28    | 19    | Gilbert, D.                       | 860   | 545   |
| Gale, H.  | 92    | 60    | Gilbert, J. R.                    | 868   | 547   |
| Gale, H.  | 125   | 79    | Gilbert, J. R.                    | 903   | 550   |
| " " (R)   | 126   | 79    | Giles, J.                         | 1029  | 631   |
| Gale, H.  | 135   | 82    | Gill, J. L.                       | 522   | 324   |
| " " (R)   | 135   | 83    | Gillaspie, L. C. Sr.              | 283   | 171   |
| Gale, H.  | 584   | 346   | Gilleland, J. H.                  | 233   | 138   |
| Gale, H.  | 615   | 357   | Gilleland, J. H.                  | 894   | 550   |
| " " (R)   | 616   | 357   | Gillespie, R. T.                  | 356   | 214   |
| Gale, H.  | 642   | 369   | Gillespie, R. T.                  | 358   | 215   |
| Galentine, H.                                       | 130   | 80    | Gillet, H.                        | 445   | 276   |
| Gallagher, P.                                       | 63    | 49    | Gillette, H.                      | 1076  | 650   |
| Gallatin, J.  | 507   | 318   | Gilliam, J. W.                    | 577   | 344   |
| Gammill, G. W.                                      | 899   | 558   | Gilmann, W.                       | 25    | 17    |
| Gandy, O. S.  | 892   | 555   | Gilmer, J.                        | 603   | 352   |
| Ganong, L. W.                                       | 273   | 168   | Gilmore, A.                       | 590   | 339   |
| Ganse, H. D.  | 370   | 227   | Gilson, T. and Martin, N.         | 551   | 333   |
| Gardner, J. N.                                      | 234   | 138   | Gingrich, J. K.                   | 42    | 34    |
| Gardner, F. M.                                      | 352   | 213   | Gitt, D. D.                       | 49    | 33    |
| Gardner, C.   | 742   | 485   | Gla-oe, O. J.                     | 51    | 37    |
| Gardner, J. M.                                      | 1044  | 646   | Glenn, N. Z.                      | 873   | 549   |
| Garlington, T. C.                                   | 839   | 533   | Glidden, C.                       | 553   | 334   |
| Garrett, J. M.                                      | 225   | 134   | Glover, F. E.                     | 236   | 139   |

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| <i>Plate</i>                       | <i>Claim</i>          | <i>Plate</i>                | <i>Claim</i> | <i>Plate</i>               | <i>Claim</i>             |
|------------------------------------|-----------------------|-----------------------------|--------------|----------------------------|--------------------------|
| Guyer, J.                          | 371 227               | " "                         | (R)          | 543 330                    | Henderson, L.            |
| Gwynn, S.                          | 1005 623              | Harper, C. A.               | 1091 669     | Henderson, J.              | 212 129                  |
| Hacke, F.                          | 417 249               | Harpster, R.                | 356 214      | Hendley, J. W.             | 264 165                  |
| Hackman, A.                        | 655 375               | Harrell, W. K.              | 600 351      | Henry, W.                  | 632 365                  |
| Haege, J.                          | 543 330               | " "                         | (R)          | 600 351                    | Henry, J. C.             |
| Haege, J.                          | 556 335               | Harrington, W. H. and       |              | 1090 669                   | Herberg, P. P. and Clau- |
| Haessel, J.                        | 864 546               | Merrill, A. B.              | 732 473      | sen, P. H.                 | 12 5                     |
| Hafner, J.                         | 663 379               | Harris, S. M.               | 52 38        | Herbert, W. and C. T.      | 188 113                  |
| Haggard, G. W. and Bull,<br>Geo.   | 753 499               | Harris, E. H. and Cleghorn, |              | Heibert, J.                | 302 185                  |
| Hague, C. A.                       | 162 96                | J.                          | 199 123      | Hening, J. F.              | 704 454                  |
| Hague, C. A.                       | 162 96                | Harris, T. J.               | 272 168      | Hess, G. H.                | 377 229                  |
| Haight, D. B.                      | 515 321               | Harris, J. R.               | 276 169      | Hesselbom, C. M.           | 780 513                  |
| Haiman, E.                         | 279 170               | Harris, J. R.               | 277 169      | Hewit, S.                  | 702 502                  |
| " " (R)                            | 180 170               | Harris, J. R.               | 277 170      | Heydrick, W. H. H.         | 1014 627                 |
| Haiman, E.                         | 591 348               | Harris, C. A.               | 376 220      | Heydrick, W. H. H.         | 1025 631                 |
| " " (R)                            | 501 348               | Harris, Z.                  | 492 300      | Hilbs, J.                  | 40 33                    |
| Hain, M. and D.                    | 300 215               | Harris, J.                  | 553 334      | Higgins, R. S.             | 119 77                   |
| Hakes, H. B.                       | 949 584               | Harris, E.                  | 758 501      | Higgins, J. and J. W.      | 352 213                  |
| Hale, N. M.                        | 216 130               | Harris, J. P.               | 842 539      | Hilbreth, G. W.            | 701 453                  |
| Hale, O. F.                        | 322 192               | Harris, L. P.               | 1056 649     | Hilt, A. R.                | 287 173                  |
| Hall, J. S.                        | 24 17                 | Harrison, C. B.             | 229 136      | Hill, H. W.                | 327 195                  |
| Hall, J. S.                        | 67 50                 | Harrison, I. F.             | 282 171      | Hill, F. A. and Church,    |                          |
| Hall, F. J.                        | 112 73                | Harrison, N. and Metcalf,   | 1 M. J.      | Hill, D. H.                | 332 197                  |
| " " (R)                            | 112 73                | J. W. H.                    | 928 576      | Hill, D.                   | 866 547                  |
| Hall, J. H.                        | 118 70                | Hartison, J. P.             | 234 138      | Himrod, W. G.              | 8 3                      |
| Hall, J. M.                        | 201 123               | Harsha, James               | 2 1          | Himkley, F. F.             | 438 274                  |
| Hall, J. M.                        | 203 124               | Hart, L. M.                 | 248 149      | Hinds, W.                  | 540 331                  |
| Hall, F. A. and Milton,<br>N. B.   | 243 144               | Hartman, C. R.              | 986 607      | Hinman, J. and French, D.  |                          |
| Hall, J. A.                        | 375 229               | Hartman, J.                 | 957 587      | Hoadley, J.                | 704 503                  |
| Hall, J.                           | 391 234               | Hartman, C. R.              | 1096 652     | Hoagland, J. N., Cumming,  |                          |
| Hall, S.                           | 514 <sup>12</sup> 321 | " " (R)                     | 1007 652     | H. L. and Tallman, F. G.   | 670 382                  |
| Hall, J. S.                        | 535 328               | Hartmann, J.                | 951 585      | Hobson, I.                 | 435 273                  |
| Hall, J. S.                        | 568 340               | Hartmann, J.                | 960 588      | Hodge, E. C.               | 942 582                  |
| Hall, J. D.                        | 584 346               | Hartmann, J.                | 991 589      | Hodge, E. C.               | 944 582                  |
| Hall, J. S.                        | 905 451               | Hartmann, J.                | 971 594      | Hodge, E. C.               | 958 588                  |
| Hall, H. G. and E. L.              | 697 452               | Hartpence, S. and Bowne,    |              | Hoefelman, W. H.           | 1693 670                 |
| Hall, L. W.                        | 712 457               | J. D.                       | 500 316      | Hoffheim, R.               | 450 278                  |
| Hall, A.                           | 477 296               | Hartsheld, J. A.            | 205 125      | Hoffmeyer, A. B. and       |                          |
| Hall, J. S.                        | 837 537               | Hartzell, C.                | 82 55        | Schmidt, J.                | 788 513                  |
| Hall, J. S.                        | 837 537               | Hartzell, J. S.             | 629 363      | Hogmire, J. O.             | 7 3                      |
| Hall, J. M.                        | 842 539               | Hartzell, C.                | 574 342      | Hoke, D.                   | 528 325                  |
| Hall, S.                           | 927 575               | Harvey, E. O.               | 85 57        | Hoke, F. P.                | 677 386                  |
| Hall, J. S.                        | 928 576               | Harvey, E. W.               | 285 172      | Holbrook, F., Nowe, J. A.  |                          |
| Hall, J. M.                        | 930 577               | Harvey, B.                  | 793 453      | and Nourse, J.             | 941 581                  |
| Hall, J. S.                        | 948 584               | Haskin, O.                  | 608 502      | " " (R)                    | 941 581                  |
| Hall, J. S.                        | 951 584               | Haskins, A.                 | 331 197      | Holbrook, F. F. and Moul-  |                          |
| Hall, A. W.                        | 1011 625              | Hastings, P.                | 499 314      | ton, E. S.                 | 971 594                  |
| Halsted, J. D. and A. M.           | 372 228               | Hatcher, J. W.              | 221 122      | " " " " (R)                | 972 594                  |
| Hampton, E. I. and Earl,<br>C. N.  | 455 280               | Hathaway, S.                | 148 80       | Holland, J. J.             | 426 260                  |
| Hamlet, W.                         | 455 281               | Haven, G. S.                | 900 608      | Holley, J. F.              | 970 593                  |
| Hammer, J. A. and Gordon,<br>J. P. | 445 267               | Haviland, G. W.             | 644 300      | Holloway, P.               | 631 364                  |
| Hammond, A.                        | 434 273               | Hawes, B. B.                | 86 217       | Holt, W.                   | 215 130                  |
| Hammond, A.                        | 441 275               | Hawkins, A. B. and Pun-     |              | Holt, R. C.                | 215 130                  |
| Hampe, A.                          | 617 358               | tenney, J.                  | 442 57       | Holton, G. W.              | 73 53                    |
| Hampe, A.                          | 616 357               | Hawkins, J.                 | 1002 275     | Honiaghous, L.             | 781 511                  |
| Hancock, M. T.                     | 905 560               | Hawley, E. E.               | 399 621      | Hood, J. R.                | 217 131                  |
| Hanes, J.                          | 856 543               | Hawse, B. B.                | 89 227       | Hood, B. R.                | 845 539                  |
| Hanon, J. Jr.                      | 441 275               | Hawse, B. B.                | 957 587      | Hoover, W. U.              | 571 341                  |
| Hanson, C.                         | 678 387               | Hayden, C.                  | 1066 652     | Hope, J. D.                | 995 619                  |
| Hapgood, J.                        | 945 583               | Haynes, J.                  | 797 510      | Hopkins, G. E.             | 796 515                  |
| Hapgood, J.                        | 954 586               | Haynie, J. D.               | 184 111      | Horney, S. Jr.             | 519 323                  |
| Harbaugh, J. R.                    | 1098 672              | Haynsworth, H.              | 383 231      | Houghton, F.               | 23 17                    |
| Harbert, T. M.                     | 1097 671              | Heald, R. K.                | 678 387      | House, J. L.               | 332 197                  |
| Harerow, J. M.                     | 221 132               | Heartsill, A.               | 895 557      | House, J. L.               | 333 197                  |
| Hardenbrook, R.                    | 937 579               | Heckendorf, J.              | 140 85       | Houston, J. D.             | 207 125                  |
| Hardesty, B. T.                    | 184 111               | Heckendorf, J.              | 524 354      | Hovis, J. T.               | 81 55                    |
| Hardin, A. I.                      | 929 576               | Hedrick, G. T.              | 574 342      | Hovis, J. T.               | 129 80                   |
| Harding, W. E.                     | 423 259               | Heffley, G., Conrad, S. and | 629 363      | Howard, J. R.              | 252 149                  |
| Hardy, D.                          | 290 174               | Wigle, J.                   | 517 322      | Howard, J. W.              | 1079 656                 |
| Har g, J. H.                       | 902 559               | Hege, C. A.                 | 618 358      | Howe, G. W.                | 950 584                  |
| Harmon, D.                         | 317 191               | Heiges, D.                  | 583 345      | Howell, M. A. Jr.          | 445 576                  |
| Harmon, W. R.                      | 860 545               | Heiway, F. E. and Walls,    |              | Howell, J. W. D. and Sipe, |                          |
| Harned, A. L.                      | 325 194               | J. J.                       | 276 127      | J.                         | 517 322                  |
| Harper, C. A.                      | 46 36                 | Helmecke, F. A.             | 249 147      | Howell, W. T.              | 862 545                  |
| Harper, D.                         | 542 330               | Henderson, R. B.            | 209 127      | Hoxie, H. S.               | 119 77                   |
|                                    |                       |                             |              |                            | 129 80                   |

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| <i>Plate</i>                               | <i>Claim</i> |     | <i>Plate</i>                 | <i>Claim</i> |     | <i>Plate</i>                                      | <i>Claim</i> |     |
|--|--------------|-----|------------------------------|--------------|-----|---|--------------|-----|
| Hoyt, O. W.                                | 359          | 215 | Jenkins, C. S.               | 162          | 96  | Jordan, J. W.                                     | 923          | 574 |
| Hoyt, B. C.                                | 721          | 469 | Jenkins, C. W.               | 799          | 456 | Jordon, D. C.                                     | 371          | 227 |
| " " (A. I.)                                | 721          | 469 | Jenkins, W. F. and C. W.     | 711          | 457 | Jory, J. W.                                       | 678          | 387 |
| Hubbard, D. C.                             | 842          | 530 | Jennings, W. A.              | 99           | 64  | Joyner, L. B.                                     | 204          | 124 |
| Hubbell, M.                                | 102          | 65  | Jennings, A.                 | 347          | 211 | Joynes, R. F.                                     | 372          | 227 |
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|  |   | 326 99                               |
|  |   | 194 Powers, J. W. 64                 |
|  |   | 558 Prairie, J. P. 239               |
|  |   | 516 Pratt, I. C. 439                 |
|  |   | 339 Pratt, C. A. 732                 |
|  |   | 473 473                              |

GENERAL ALPHABETICAL INDEX.

| <i>Plate</i>                               | <i>Claim</i> | <i>Plate</i>   | <i>Claim</i>              | <i>Plate</i> | <i>Claim</i>               |
|--|--------------|----------------|---------------------------|--------------|----------------------------|
| Prentiss, S. and Flint, G.                 | 572          | 341            | Reese, G. and P.          | 644          | 300                        |
| Prentiss, M.                               | 861          | 545            | Reese, F.                 | 1078         | 656                        |
| Preston, A. A.                             | 28           | 19             | Reich, J.                 | 634          | 306                        |
| Preston, A.                                | 530          | 326            | Reid, W. G.               | 895          | 556                        |
| Preston, J.                                | 877          | 550            | Renak, F.                 | 612          | 356                        |
| Preston, J.                                | 888          | 554            | Revercomb, J.             | 694          | 450                        |
| Price, Levi.                               | 9            | 4              | Reynolds, E. D. and O. B. | 163          | 96                         |
| Price, W.                                  | 200          | 123            | Reynolds, J.              | 271          | 168                        |
| Price, W.                                  | 222          | 132            | Reynolds, J.              | 272          | 168                        |
| Price, J. F.                               | 235          | 139            | Reynolds, E. D. and O. B. | 377          | 230                        |
| Price, W.                                  | 606          | 353            | Reynolds, S. H.           | 451          | 279                        |
| Price, W.                                  | 838          | 337            | Reynolds, L.              | 521          | 323                        |
| Price, J. A.                               | 883          | 553            | Reynolds, L.              | 693          | 450                        |
| Price, B.                                  | 935          | 578            | Reynolds, S. G.           | 730          | 472                        |
| Prillaman, M.                              | 75           | 53             | Reynolds, F. F.           | 858          | 544                        |
| Prillaman, M.                              | 78           | 54             | " " (R)                   | 858          | 544                        |
| Primmer, R. M.                             | 321          | 192            | Reynolds, J.              | 1007         | 623                        |
| Prindle, R. B.                             | 66           | 50             | Reynolds, S. G.           | 1010         | 625                        |
| Pritchard, J. P.                           | 943          | 582            | Reynolds, T. H.           | 1074         | 655                        |
| Prouty, D. and Mears, J.                   | 498          | 315            | Rhoades, A. and Tash, W.  | 4            | 2                          |
| Prouty, D. and Mears, J.                   | 502          | 317            | Rhodes, D.                | 68           | 51                         |
| Prouty, D. and Mears, J.                   | 504          | 318            | Rhodes, M. G. and Skaggs, |              |                            |
| Prouty, D.                                 | 513          | 320            | J. M.                     | 848          | 540                        |
| Prunelle, R. H.                            | 220          | 132            | Rice, E. S.               | 117          | 76                         |
| Prutzman, J. P., J. E. and McIntire, J. P. | 626          | 362            | Rice, G. W.               | 268          | 167                        |
| Puckett, K.                                | 208          | 127            | Rich, J.                  | 516          | 324                        |
| Pugh, J. L.                                | 285          | 172            | Rich, J.                  | 524          | 324                        |
| Pullman, J. B.                             | 1068         | 653            | Rich, J. and M.           | 890          | 554                        |
| Purefoy, A. F.                             | 674          | 384            | Rich, M.                  | 923          | 574                        |
| Pumam, T. E.                               | 601          | 352            | Richard, A.               | 670          | 382                        |
| Pykiet, G. F.                              | 127          | 80             | Richards, M. and Vand-    |              |                            |
| Pyle, I. N.                                | 357          | 214            | grift, J.                 | 554          | 334                        |
| Querry, E. M.                              | 1070         | 654            | " " " (R)                 | 554          | 334                        |
| Quick, J. A.                               | 725          | 470            | Richards, M.              | 124          | 79                         |
| Quigley, T. B.                             | 507          | 319            | Richards, J. M.           | 286          | 173                        |
| Quigley, T. B. and Hall, H.                | 511          | 320            | Richards, H. G.           | 323          | 193                        |
| Quimby, W. F.                              | 760          | 502            | Richards, W.              | 902          | 559                        |
| Quimby, W. F. and Lob- dell, G. G.         | 762          | 502            | Richardson, L. W.         | 473          | 295                        |
| Quimby, W. F. and Lob- dell, G. G.         | 770          | 505            | Richardson, W. C. B.      | 794          | 515                        |
| Quin, J.                                   | 482          | 298            | Richardson, T. E.         | 837          | 537                        |
| Quin, J.                                   | 676          | 386            | Richardson, D. C.         | 861          | 545                        |
| Rabb, W. S.                                | 865          | 547            | Richardson, L. B.         | 1093         | 670                        |
| Rabb, W. S.                                | 942          | 582            | Richter, C. F.            | 849          | 540                        |
| Raftery, J. T.                             | 413          | 247            | Rick, F.                  | 143          | 86                         |
| Railey, J. A.                              | 330          | 196            | Rickard, A.               | 26           | 18                         |
| Rains, W. O.                               | 254          | 150            | Rickard, L.               | 314          | 189                        |
| Rakestraw, Y.                              | 571          | 341            | Rickard, A.               | 875          | 549                        |
| Rall, W.                                   | 601          | 352            | Rider, L. P.              | 467          | 293                        |
| Ramage, J. O.                              | 841          | 538            | Rider, Z.                 | 474          | 205                        |
| Rams, T.                                   | 697          | 451            | Ridley, H. A.             | 901          | 559                        |
| Ramsay, G. M.                              | 997          | 620            | Rigby, A.                 | 1083         | 658                        |
| Ramsay, G. M.                              | 1003         | 622            | Rigell, M. and Ivey, W.   | D.           | 342                        |
| Randolph, J. H. Jr.                        | 787          | 512            | Riggle, M.                | 354          | 214                        |
| Rankin, I. N.                              | 1059         | 650            | Riggle, T.                | 582          | 345                        |
| Rappelye, T. S. and T. W.                  | 1061         | 650            | Riggan, J. H.             | 641          | 369                        |
| Rarick, B. F., W. P. and J.                | 1097         | 671            | Riley, S.                 | 866          | 547                        |
| Rawls, J. G.                               | 243          | 144            | Ringen, G.                | 503          | 338                        |
| Ready, W. B.                               | 706          | 455            | Ringen, G.                | 620          | 359                        |
| Ream, G. W.                                | 588          | 348            | Rittenhouse, D. G.        | 272          | 168                        |
| Reams, C. F.                               | 222          | 133            | Rivers, A. W. L.          | 851          | 541                        |
| Reaney, W.                                 | 529          | 326            | Riviere, A.               | 878          | 551                        |
| Reasin, J. E.                              | 39           | 33             | Roach, L.                 | 755          | 500                        |
| Rector, H. T.                              | 53           | 38             | Robb, J.                  | 693          | 450                        |
| Redman, J.                                 | 1097         | 671            | Robb, D.                  | 925          | 575                        |
| Redmond, O.                                | 1014         | 626            | Robbins, P. D.            | 228          | 135                        |
| Reed, S. J.                                | 347          | 211            | Robbins, D. F. and Morri- |              |                            |
| Reed, J. E.                                | 385          | 232            | son, S.                   | 432          | 272                        |
| Reed, S.                                   | 392          | 324            | Robarts, J. L.            | 422          | 259                        |
| Reed, J. W.                                | 605          | 353            | Roberts, W.               | 183          | 111                        |
| Reed, L. M.                                | 699          | 452            | Roberts, A. F.            | 224          | 133                        |
| Reeder, A.                                 | 41           | 33             | Roberts, G. W.            | 256          | 152                        |
| Reedy, J.                                  | 345          | 210            | Roberts, J. W.            | 320          | 192                        |
| Reese, F.                                  | 81           | 55             | Roberts, S. J.            | 510          | 320                        |
| Reese, F.                                  | 271          | 168            | Roberts, M. L.            | 725          | 470                        |
| Reese, E.                                  | 425          | 260            | Roberts, E. B.            | 773          | 507                        |
|  |              | Roberts, A. F. | 1072                      | 654          | St. John, G. B. and Under- |
|  |              |                |                           |              | St. John, C.               |
|  |              |                |                           |              | St. John, G. B.            |
|  |              |                |                           |              | 553                        |
|  |              |                |                           |              | 334                        |

*GENERAL ALPHABETICAL INDEX.*

| <i>Plate</i>                                | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>                     | <i>Plate</i> | <i>Claim</i> |
|---|--------------|--------------|----------------------------------|--------------|--------------|
| wood, J. R.                                 | 810          | 522          | Sheets, I. S.                    | 314          | 190          |
| Saladee, C. W. and Simpson, T.              | 696          | 451          | Sheets, I. S.                    | 318          | 191          |
| Saladee, C. W.                              | 1008         | 624          | Shelton, G.                      | 84           | 56           |
| Salsbury, G. M. and G. S.                   | 544          | 331          | Shelton, G.                      | 599          | 351          |
| Salvesen, V.                                | 331          | 197          | " " (R)                          | 599          | 351          |
| Sample, J. R.                               | 621          | 359          | Shemwell, O. M.                  | 136          | 83           |
| Sanborn, A.                                 | 82           | 55           | Shepard, J.                      | 268          | 107          |
| Sanborn, A.                                 | 932          | 577          | Shepard, J.                      | 575          | 343          |
| Sanborn, A.                                 | 948          | 584          | Sherman, J. H.                   | 116          | 75           |
| Sanders, E. A.                              | 94           | 61           | Sherman, D. B.                   | 798          | 516          |
| Sanders, E. A.                              | 146          | 87           | Sherrill, J.                     | 1098         | 671          |
| Sanders, W. M.                              | 232          | 138          | Shetwood, A. H.                  | 386          | 232          |
| Sanders, N.                                 | 671          | 383          | Sherwood, H. B.                  | 400          | 237          |
| Sandiford, R.                               | 71           | 52           | Sherwood, L.                     | 777          | 509          |
| Sandlin, W.                                 | 280          | 171          | Shield, F. M.                    | 210          | 128          |
| Sanford, A.                                 | 99           | 64           | Shield, F. M.                    | 280          | 171          |
| Sanford, J. W.                              | 376          | 229          | Shipp, J. W. and Crenshaw, C. W. | 534          | 327          |
| Sanford, T.                                 | 527          | 325          | " "                              | 11.          | 925          |
| Sanford, O. P.                              | 882          | 552          | Shipp, W. T., Peterson, C.       | 551          | Smith, H. B. |
| Sater, H. H.                                | 164          | 97           | J. and McLard, R. L.             | 870          | 551          |
| Sattler, H.                                 | 960          | 593          | Shiver, C. J.                    | 848          | Smith, A. B. |
| Sattler, H.                                 | 973          | 595          | Shogren, A.                      | 99           | 540          |
| Sattley, M.                                 | 120          | 77           | Shotwell, S. L. and Hicks, S. R. | 1008         | Smith, J. K. |
| Sauls, W. W.                                | 239          | 141          | " "                              | 624          | Smith, D. B. |
| Saunders, T.                                | 260          | 167          | Shular, L. H.                    | 351          | Smith, M. T. |
| Saunders, W. R.                             | 847          | 540          | Shunk, A. Sr.                    | 212          | Smith, G. B. |
| Saunders, T.                                | 858          | 544          | Seiverling, H. C.                | 573          | 1092         |
| Saunders, I. J.                             | 892          | 555          | Sigist, F.                       | 77           | 924          |
| Sayer, S. D.                                | 583          | 346          | Simmons, M. H.                   | 66           | 1008         |
| Schenk, J. C. F.                            | 704          | 453          | Simmons, A. and M.               | 98           | 624          |
| Schlessman, M.                              | 885          | 553          | " "                              | 361          | Smith, D. B. |
| Schmidt, L.                                 | 977          | 597          | Simonds, F.                      | 674          | 1083         |
| Schofield, J.                               | 87           | 58           | Simonsen, G.                     | 384          | 658          |
| Schram, A. C.                               | 100          | 95           | Simpson, J.                      | 1013         | 1090         |
| Schran, A. C.                               | 425          | 260          | Sims, B. L.                      | 99           | 669          |
| Schubert, M.                                | 746          | 487          | Sims, Z. B.                      | 62           | 1092         |
| Schuchard, J.                               | 814          | 523          | Sinclair, H. B.                  | 75           | 670          |
| Schuetz, A.                                 | 886          | 553          | Singer, J.                       | 515          | 397          |
| Schultz, J. D. and Adams, B.                | 771          | 506          | Singleton, D. T.                 | 321          | 363          |
| Scott, R.                                   | 382          | 231          | Sipe, A.                         | 871          | 548          |
| Scott, J.                                   | 451          | 279          | Nisson, J. G. and Delana, L.     | 860          | 548          |
| Scoville, T. S.                             | 758          | 501          | " "                              | 553          | 629          |
| Scoville, I. and H. H.                      | 949          | 580          | Skellon, W. M.                   | 517          | 363          |
| Scoville, T. S.                             | 1057         | 640          | Skillings, H.                    | 800          | 350          |
| Seaman, J.                                  | 638          | 367          | Skinner, J. B.                   | 114          | 212          |
| Seaman, J.                                  | 652          | 374          | Skinner, J. B.                   | 74           | 205          |
| Search, C. F.                               | 95           | 62           | Skinner, J. B.                   | 115          | 125          |
| Seeger, G. Loveless, J. W. and Throp, J. W. | 349          | 212          | Skinner, J. B.                   | 75           | 268          |
| Seegmiller, S.                              | 32           | 20           | Skinner, W. W.                   | 722          | 167          |
| Seely, L. J.                                | 85           | 57           | Slocum, M. D.                    | 149          | 285          |
| Seely, S. F.                                | 1003         | 651          | Sloop, H.                        | 838          | 172          |
| Selden, D. J.                               | 607          | 451          | Small, J. B., Holbrook, F.       | 557          | 655          |
| Selick, H.                                  | 580          | 345          | F. and Matthews, E. G.           | 335          | 375          |
| Selick, H.                                  | 605          | 353          | Small, W.                        | 557          | 656          |
| Sellers, J. C.                              | 206          | 125          | Smaulay, H. B.                   | 722          | 376          |
| Sennies, R. T.                              | 991          | 609          | Smeltzer, D. B. D.               | 187          | 945          |
| Sessions, F. E. and Knox, S. A.             | 472          | 294          | Smiley, W. H.                    | 1077         | 583          |
| Sessions, F. E.                             | 900          | 588          | Smith, L. E.                     | 85           | 1005         |
| Sewell, J.                                  | 883          | 552          | Smith, F. C.                     | 111          | 622          |
| Seyler, B.                                  | 516          | 322          | Smith, F. F.                     | 120          | 231          |
| Seymour, J.                                 | 469          | 293          | Smith, J. M.                     | 125          | 137          |
| Shabney, C.                                 | 709          | 504          | Smith, G. K.                     | 130          | 287          |
| Shattar, L. W.                              | 541          | 329          | Smith, J. H.                     | 143          | 173          |
| Shelters, M. R. and Ray, S.                 | 802          | 546          | Smith, J. F.                     | 242          | 814          |
| Shannon, T. E.                              | 201          | 123          | Smith, J. S.                     | 248          | 523          |
| Shares, D. W.                               | 741          | 485          | Smith, J. N. and Buckley, W. O.  | 271          | 998          |
| Sharkey, P.                                 | 264          | 166          | " "                              | 1077         | 620          |
| Sharp, T.                                   | 23           | 17           | Smith, J. B.                     | 189          | 128          |
| Shaw, J. H.                                 | 77           | 54           | Smith, G.                        | 369          | 80           |
| Shaw, H. F. and G. F.                       | 956          | 586          | Smith, G. W.                     | 374          | 237          |
| Shaw, H. F. and G. F.                       | 962          | 589          | Smith, W. D.                     | 376          | 140          |
| Shaw, P.                                    | 997          | 619          | Smith, R. P. and Gates, J.       | 385          | 322          |
| Shearer, S.                                 | 511          | 320          | R.                               | 446          | 519          |
| Shedd, W. F.                                | 67           | 50           | Smith, A.                        | 462          | 320          |
| Sheehan, T.                                 | 125          | 79           | Smith, D.                        | 470          | 332          |
|   |              |              |                                  | 277          | 259          |
|   |              |              |                                  | 291          | 501          |
|   |              |              |                                  | 294          | 517          |
|   |              |              |                                  | 277          | 693          |
|   |              |              |                                  | 291          | 450          |
|   |              |              |                                  | 294          | 1080         |
|   |              |              |                                  | 291          | 659          |
|   |              |              |                                  | 277          | 318          |
|   |              |              |                                  | 291          | 191          |
|   |              |              |                                  | 294          | 329          |
|   |              |              |                                  | 291          | 196          |
|   |              |              |                                  | 294          | 303          |
|   |              |              |                                  | 294          | 185          |

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| Plate                          | Claim | Plate | Claim                                   | Plate | Claim |
|--------------------------------|-------|-------|---|-------|-------|
| Stafford, C. W.                | 442   | 275   | Swartz, D.                              | 518   | 322   |
| Stanlart, S. W.                | 312   | 389   | Swartz, D. and S.                       | 520   | 323   |
| Standish, P. H.                | 774   | 507   | Swartz, R. E.                           | 732   | 473   |
| Standish, P. H.                | 1015  | 627   | Swartz, P. E. and Arnott,               |       |       |
| Stanger, M. E.                 | 861   | 545   | A.                                      | 970   | 593   |
| Stanley, H.                    | 722   | 469   | Sweeny, R.                              | 493   | 311   |
| Stanley, H.                    | 707   | 504   | Sweetland, H. H.                        | 949   | 584   |
| Stansbury, T. A.               | 559   | 333   | Sweitzer, J.                            | 538   | 329   |
| Starke, P. H.                  | 536   | 328   | Swenson, N., Lindquist, J.              |       |       |
| Starke, P. H.                  | 508   | 340   | S. and Hedlund, C.                      | 669   | 382   |
| Starke, P. H.                  | 571   | 341   | Swift, A.                               | 453   | 280   |
| Starke, P. H.                  | 595   | 350   | Swofford, J. P.                         | 278   | 179   |
| Starke, P. H.                  | 606   | 353   | Sykes, C. W.                            | 934   | 578   |
| Stark, F. C.                   | 1031  | 632   | Talley, R. J.                           | 896   | 557   |
| Starnes, S. S.                 | 503   | 338   | Tallmadge, N. S.                        | 1062  | 650   |
| Starrett, J. D.                | 788   | 513   | Tally, T. J.                            | 810   | 522   |
| Startzman, W. H.               | 860   | 545   | Tanger, D. B.                           | 102   | 65    |
| Stearns, L. M.                 | 67    | 50    | Tapley, J. H.                           | 76    | 53    |
| Stellblus, L.                  | 823   | 527   | Taplin, H. T.                           | 778   | 500   |
| Steen, C.                      | 857   | 544   | Tarnutzer, J. P.                        | 771   | 505   |
| Steinmetz, C. P.               | 939   | 580   | Tate, E.                                | 945   | 591   |
| Steller, C. E.                 | 121   | 78    | Taveau, A. L.                           | 1020  | 629   |
| Steller, C. E.                 | 147   | 88    | Tavener, E. C. and                      |       |       |
| Stem, H.                       | 577   | 343   | Nesmith, O.                             | 521   | 323   |
| Stephens, A. J.                | 319   | 191   | Taylor, J. V.                           | 341   | 200   |
| Stephens, A. J.                | 776   | 509   | Taylor, B.                              | 378   | 230   |
| Stephens, H.                   | 859   | 544   | Taylor, C. B.                           | 496   | 313   |
| Stephenson, W.                 | 628   | 363   | Taylor, A.                              | 496   | 314   |
| Stevens, T. S.                 | 756   | 500   | Taylor, H.                              | 501   | 317   |
| Stevens, J.                    | 756   | 500   | Taylor, A.                              | 510   | 319   |
| Stevens, L.                    | 759   | 501   | Taylor, A. C.                           | 673   | 384   |
| Stevens, A. J.                 | 1019  | 629   | Teague, J. C.                           | 8     | 3     |
| Stewart, D.                    | 72    | 52    | Teague, J. C.                           | 266   | 166   |
| Stewart, E.                    | 80    | 55    | Teague, A.                              | 506   | 318   |
| Stewart, S. M.                 | 592   | 349   | Teague, A.                              | 579   | 344   |
| Stewart, J. A.                 | 694   | 451   | Teeter, L.                              | 923   | 574   |
| Stewart, U. T.                 | 865   | 546   | Tefft, J. S.                            | 506   | 318   |
| Stewart, L.                    | 1018  | 629   | Temples, J. L.                          | 1098  | 672   |
| Stickney, B. F.                | 751   | 499   | Templin, T. T.                          | 991   | 609   |
| " " " (R)                      | 114   | 74    | Terrel, T.                              | 43    | 35    |
| Stoddard, J. C.                | 203   | 124   | Terrel, T.                              | 856   | 543   |
| Stoddard, J. C.                | 757   | 500   | Terrell, H. D.                          | 285   | 172   |
| Stoddard, W.                   | 1000  | 621   | Tessier, M.                             | 579   | 344   |
| Stillman, W. W.                | 113   | 74    | Thayer, A. P.                           | 1011  | 625   |
| Stoker, A. W.                  | 552   | 334   | Themar, R. and Brand                    |       |       |
| Stone, W. H.                   | 49    | 37    | Brothers,                               | 1074  | 655   |
| Stone, J. C.                   | 796   | 516   | Thom, D. K.                             | 263   | 165   |
| Stone, R.                      | 1044  | 640   | Thom, J. W.                             | 478   | 200   |
| Stoner, J. B.                  | 64    | 49    | Thomas, C. H.                           | 134   | 82    |
| Stoner, A. F.                  | 776   | 508   | Thompson, N. S.                         | 49    | 37    |
| Storle, O. O.                  | 700   | 453   | Thompson, C. R.                         | 143   | 81    |
| Storm, J. H.                   | 52    | 38    | Thompson, M. Y.                         | 393   | 235   |
| Storm, J. H.                   | 52    | 38    | Thompson, L. P.                         | 480   | 267   |
| Story, J. T.                   | 594   | 340   | Thompson, T.                            | 526   | 325   |
| Straight, H. D.                | 624   | 360   | Thompson, S. R.                         | 573   | 341   |
| Straight, R. E.                | 727   | 971   | Thompson, A.                            | 770   | 505   |
| Straight, W.                   | 958   | 557   | Thompson, J.                            | 781   | 511   |
| " " " (R)                      | 958   | 557   | Thompson, J. T.                         | 849   | 541   |
| Straight, W.                   | 964   | 500   | Thompson, G. W.                         | 936   | 578   |
| Straut, W.                     | 971   | 593   | Thompson, G. W.                         | 943   | 582   |
| Strauton, C. H.                | 954   | 586   | " " " (R)                               | 943   | 582   |
| Street, H. G.                  | 267   | 167   | Thomson, G. and J.                      | 140   | 85    |
| Stridd, E. F.                  | 614   | 357   | Thomson, R. B.                          | 146   | 87    |
| Stridd, E. F.                  | 647   | 371   | Thomson, R. B.                          | 634   | 365   |
| Stripe, I.                     | 449   | 278   | Thorn, E.                               | 437   | 274   |
| Strong, H. C.                  | 10    | 4     | Thornton, A. B.                         | 352   | 213   |
| Strong, C. C.                  | 704   | 434   | Thornton, A. B.                         | 356   | 214   |
| Stroop, I.                     | 1     | 1     | Thornton, J. B., McDonel,               |       |       |
| Stuart, J. W. and Allen, J. G. | 328   | 195   | G. H. and Hale, A.                      | 1095  | 670   |
| Surdevant, O.                  | 444   | 276   | Thraillkill, S.                         | 304   | 186   |
| Surtevant, Z. W.               | 941   | 581   | Throp, G. W.                            | 701   | 453   |
| Sustaire, J. T.                | 241   | 142   | Thurman, J. W.                          | 926   | 575   |
| Sutton, E. H.                  | 226   | 134   | Thurston, F. G.                         | 279   | 170   |
| " " " (R)                      | 227   | 135   | Tice, I. P.                             | 1024  | 630   |
| Sutton, W. H.                  | 1084  | 658   | Tichenor, W. B.                         | 324   | 193   |
| Swart, J.                      | 185   | 111   | Tietjens, H. H.                         | 376   | 229   |
| Swart, J.                      | 268   | 167   | Tietz, J.                               | 937   | 579   |
| Swartz, David, (A. I.)         | 1     | 1     | Tiffany, J. C.                          | 395   | 186   |
|                                |       |       | Tilley, J. R.                           | 799   | 517   |
|                                |       |       | Tilton, W. C.                           | 223   | 133   |
|                                |       |       | Tilton, D. L.                           | 1089  | 669   |
|                                |       |       | Tingley, J. M.                          | 611   | 355   |
|                                |       |       | Tinkler, J.                             | 922   | 574   |
|                                |       |       | Titus, W. D.                            | 566   | 339   |
|                                |       |       | Tobias, B.                              | 308   | 187   |
|                                |       |       | Tolle, M.                               | 1     | 1     |
|                                |       |       | Tomlinson, J.                           | 545   | 331   |
|                                |       |       | Toms, Z. and McMullen, L. W.            | 275   | 169   |
|                                |       |       | Tounley, E. A. and Fried- rich, E. S.   | 1017  | 628   |
|                                |       |       | Towers, W. M.                           | 635   | 366   |
|                                |       |       | Towers, W. M.                           | 639   | 368   |
|                                |       |       | Towers, W. W.                           | 885   | 553   |
|                                |       |       | Towers, W. McG. and Sullivan, A. R.     | 903   | 559   |
|                                |       |       | Townsend, J. T.                         | 464   | 202   |
|                                |       |       | Tracy, J. D. and Platt, J. F.           | 87    | 57    |
|                                |       |       | Tranter, J., Kinsey, J. and Cair, J. M. | 781   | 510   |
|                                |       |       | Trantham, T. H.                         | 275   | 169   |
|                                |       |       | Travis, D. W.                           | 323   | 193   |
|                                |       |       | Traxler, F.                             | 24    | 17    |
|                                |       |       | Trefitz, L. and Slimpert, G.            |       |       |
|                                |       |       | True, L. W.                             | 246   | 145   |
|                                |       |       | Trump, G.                               | 130   | 81    |
|                                |       |       | Trump, J.                               | 924   | 574   |
|                                |       |       | Tucker, A. W.                           | 479   | 297   |
|                                |       |       | Tucker, R. C.                           | 715   | 459   |
|                                |       |       | Tufts, S. G.                            | 940   | 581   |
|                                |       |       | Tull, J. W.                             | 354   | 213   |
|                                |       |       | Turley, M.                              | 710   | 356   |
|                                |       |       | Turner, W. J.                           | 716   | 459   |
|                                |       |       | Turner, W. W.                           | 839   | 558   |
|                                |       |       | Turner, J. R. and Jacobs,               |       |       |
|                                |       |       | Turnipseed, E. B.                       | 1080  | 656   |
|                                |       |       | Tuthill, T. J.                          | 219   | 131   |
|                                |       |       | Tuttle, B. W.                           | 751   | 499   |
|                                |       |       | Tuttle, B. W.                           | 131   | 81    |
|                                |       |       | Tuttle, S. D.                           | 1066  | 652   |
|                                |       |       | Twiss, C. W.                            | 152   | 90    |
|                                |       |       | Tyler, W. H.                            | 940   | 581   |
|                                |       |       | Tyner, W. L.                            | 453   | 280   |
|                                |       |       | Tyson, E. P.                            | 245   | 145   |
|                                |       |       | Uchling, T.                             | 778   | 509   |
|                                |       |       | Underhill, H. R.                        | 903   | 590   |
|                                |       |       | Underwood, F. J.                        | 123   | 78    |
|                                |       |       | Underwood, J. B.                        | 223   | 133   |
|                                |       |       | " " " (R)                               | 224   | 133   |
|                                |       |       | Underwood, J. K.                        | 794   | 515   |
|                                |       |       | " " " (R)                               | 795   | 515   |
|                                |       |       | Underwood, J. K.                        | 796   | 516   |
|                                |       |       | Underwood, J. R. and St.                |       |       |
|                                |       |       | John, G. B.                             | 811   | 522   |
|                                |       |       | Updike, R.                              | 11    | 5     |
|                                |       |       | Urie, J.                                | 566   | 339   |
|                                |       |       | Urie, C.                                | 603   | 352   |
|                                |       |       | Urie, J.                                | 613   | 356   |
|                                |       |       | Urie, J. Sr.                            | 649   | 372   |
|                                |       |       | Urie, T. S.                             | 706   | 455   |
|                                |       |       |   | 569   | 340   |
|                                |       |       |   | 853   | 542   |
|                                |       |       |   | 1057  | 649   |
|                                |       |       |   | 1080  | 657   |
|                                |       |       |   | 309   | 235   |
|                                |       |       |   | 64    | 49    |
|                                |       |       |   | 931   | 577   |
|                                |       |       |   | 561   | 337   |
|                                |       |       |   | 562   | 337   |
|                                |       |       |   | 673   | 384   |

*GENERAL ALPHABETICAL INDEX.*

| <i>Plate</i>                                     | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>  | <i>Plate</i> | <i>Claim</i> |
|--|--------------|--------------|---|--------------|--------------|
| Jonge, J.  | 48           | 36           | Warren, T. P.   | 270          | 167          |
| Van Every, C. M.                                 | 987          | 607          | Warren, A.  | 376          | 227          |
| Van Loan, W. W.                                  | 421          | 259          | Warren, J.  | 516          | 322          |
| Vann, J. A.                                      | 91           | 60           | Warren, W.  | 528          | 325          |
| Vannatta, H.                                     | 320          | 192          | Warren, W.  | 537          | 328          |
| Vars, N.   | 934          | 578          | Walsh, W. H.  | 227          | 135          |
| Vaughan, G. B.                                   | 50           | 37           | Washburn, A. W.   | 201          | 123          |
| Vaughan, G. B.                                   | 359          | 215          | Washburn, H.  | 592          | 349          |
| Vaughan, S. O.                                   | 533          | 327          | Washburn, A. W.   | 652          | 374          |
| Vaughn, J. B.                                    | 538          | 329          | Washburn, A. W.   | 839          | 538          |
| Vaughn, J. and Chamness, E.                      | 774          | 507          | Wassen, W. T.   | 455          | 281          |
| Weber, W., Jr.                                   | 43           | 35           | Watkins, J. T.  | 625          | 304          |
| Vernon, G. W.                                    | 678          | 387          | Watrous, J. J.  | 226          | 134          |
| Vertrees, J. C.                                  | 596          | 350          | Watson, D.  | 430          | 271          |
| Vick, R. A.                                      | 263          | 105          | Watson, A.  | 431          | 271          |
| Vickery, D. F. and Prickett, W. P.               | 959          | 587          | Watson, A.  | 433          | 272          |
| Vincent, C. C.                                   | 166          | 99           | Watson, W. M.   | 440          | 275          |
| Vincenzi, R.                                     | 529          | 326          | Watson, W.  | 604          | 353          |
| Vimelge, J. R.                                   | 331          | 107          | Watson, E. S.   | 847          | 540          |
| Voigt, C. I.                                     | 352          | 213          | Watt, G.  | 938          | 580          |
| Von Achen, J.                                    | 374          | 228          | Watt, G.  | 1082         | 657          |
| Von Phul, H., Jr. and Malton, J.                 | 791          | 514          | Watt, G.  | 74           | 53           |
| Voorhis, O. W., Mapes, S. H., and Voorhis, W. M. | 448          | " "          | (R)   | 411          | 247          |
| Vosburg, H.                                      | 391          | 234          | " "(A. L.)  | 505          | 318          |
| Wadleigh, S. F., Roberts, O. N. and G. S.        | 664          | 570          | " "(R)  | 524          | 324          |
| Wadsworth, W. S.                                 | 622          | 360          | Watt, G.  | 524          | 325          |
| Wadsworth, W.                                    | 703          | 503          | " "(R)  | 525          | 325          |
| Wadsworth, W.                                    | 764          | 503          | Watt, G.  | 527          | 325          |
| Waggoner, E. M.                                  | 495          | 312          | Watt, G.  | 527          | 325          |
| Wainwright, T. A.                                | 803          | 546          | Way, S.   | 527          | 325          |
| Walden, J. M.                                    | 250          | 148          | Weaber, A.  | 594          | 349          |
| Walden, J. M.                                    | 251          | 149          | Weaver, J.  | 599          | 353          |
| Walden, J. M.                                    | 253          | 149          | Weaver, W.  | 414          | 248          |
| Walden, J. M.                                    | 254          | 150          | Weaver, J.  | 921          | 575          |
| Walker, E.                                       | 8            | 4            | Webb, A.  | 743          | 486          |
| Walker, W. M.                                    | 498          | 315          | " "(R)  | 743          | 486          |
| Walker, W. and M. C.                             | 508          | 319          | Webb, J. W.   | 1072         | 654          |
| Walker, J.                                       | 514          | 321          | Webber, A. P.   | 50           | 57           |
| Walker, S.                                       | 532          | 327          | Webber, A. P.   | 137          | 83           |
| Walker, G. A.                                    | 605          | 451          | Webber, A. P.   | 358          | 215          |
| Wall, A. L. O., Roberts, G., and Carter, M. S.   | 449          | 275          | We ster, J. B. and Baxter, R.   | 702          | 70           |
| Wall, A. L. O., Roberts, G., and Carter, M. S.   | 441          | 275          | Webster, T. L.  | 117          | 83           |
| Wall, A. L. O., Roberts, G., and Carter, M. S.   | 441          | 275          | Weed, C. A.   | 643          | 360          |
| Wallace, J. R., and McClain, B. A.               | 209          | 127          | Weeks, L. and Trimble, J.   | 91           | 50           |
| Wallace, J.                                      | 549          | 333          | Wellborn, W. J. N.  | 907          | 501          |
| Wallace, J.                                      | 597          | 351          | Welling, W. J.  | 150          | 80           |
| Wallis, F. and Case, C. J.                       | 51           | 38           | Wells, E.   | 266          | 160          |
| Walpole, W. R.                                   | 1004         | 651          | Wells, M. D.  | 835          | 537          |
| Walsh, M. D.                                     | 612          | 356          | Welsh, D. F.  | 317          | W. R.        |
| Walter, E.                                       | 611          | 355          | West, C. O., Smith, J. R., Carey, J., Janney, G., Hunt, R., Hockett, A., West, D. E. and Garrison, J. | 306          | 131          |
| Walton, E. W.                                    | 809          | 548          | Weston, J. W. and M. H.   | 314          | 186          |
| Wansbrough, E.                                   | 98           | 63           | West, W. B.   | 727          | 190          |
| Wansbrough, E. and Speer, W. W.                  | 147          | 88           | West, W. B.   | 813          | 471          |
| Wansbrough, E. and Speer, W. W.                  | 147          | 88           | West, G. J.   | 609          | 522          |
| Ward, S. B.                                      | 625          | 361          | Westcott, N.  | 609          | 555          |
| Ward, T.   | 901          | 559          | Weston, J. W. and M. H.   | 316          | 190          |
| Ward, W. E.                                      | 998          | 620          | Wetherell, L.   | 202          | 123          |
| Warinner, W.                                     | 1081         | 657          | Weygandt, D.  | 755          | 500          |
| Warlick, N.                                      | 838          | 538          | Wharton, G.   | 185          | 112          |
| Warlick, W.                                      | 952          | 585          | Wheatley, R. J.   | 185          | 112          |
| Warlick, N.                                      | 985          | 607          | Wheatley, R. J.   | 584          | 346          |
| Warren, D.                                       | 40           | 33           | Whitbeck, G. V. H.  | 583          | 346          |
| Warren, O. F.                                    | 43           | 35           | Whitcomb, W. E.   | 1063         | 188          |
| Warren, T. P.                                    | 71           | 52           | Whitcomb, W. E.   | 94           | 61           |
| Warren, J.                                       | 241          | 143          | Whitcomb, G.  | 438          | 274          |
|  |              |              |   |              | 567          |
|  |              |              |   |              | 606          |
|  |              |              |   |              | 613          |
|  |              |              |   |              | 620          |
|  |              |              |   |              | 620          |
|  |              |              |   |              | 675          |
|  |              |              |   |              | 675          |
|  |              |              |   |              | 711          |
|  |              |              |   |              | 875          |
|  |              |              |   |              | 754          |
|  |              |              |   |              | 1075         |
|  |              |              |   |              | 655          |
|  |              |              |   |              | 661          |
|  |              |              |   |              | 358          |
|  |              |              |   |              | 900          |
|  |              |              |   |              | 321          |
|  |              |              |   |              | 192          |
|  |              |              |   |              | 469          |
|  |              |              |   |              | 852          |
|  |              |              |   |              | 542          |
|  |              |              |   |              | 186          |
|  |              |              |   |              | 112          |
|  |              |              |   |              | 503          |
|  |              |              |   |              | 317          |
|  |              |              |   |              | 549          |
|  |              |              |   |              | 630          |
|  |              |              |   |              | 363          |
|  |              |              |   |              | 155          |
|  |              |              |   |              | 92           |
|  |              |              |   |              | 745          |
|  |              |              |   |              | 487          |
|  |              |              |   |              | 881          |
|  |              |              |   |              | 552          |
|  |              |              |   |              | 111          |
|  |              |              |   |              | 73           |
|  |              |              |   |              | 1075         |
|  |              |              |   |              | 655          |
|  |              |              |   |              | 5            |
|  |              |              |   |              | 2            |
|  |              |              |   |              | 5            |
|  |              |              |   |              | 20           |
|  |              |              |   |              | 135          |
|  |              |              |   |              | 82           |
|  |              |              |   |              | 441          |
|  |              |              |   |              | 85           |
|  |              |              |   |              | 412          |
|  |              |              |   |              | 247          |
|  |              |              |   |              | 412          |
|  |              |              |   |              | 318          |
|  |              |              |   |              | 529          |
|  |              |              |   |              | 326          |
|  |              |              |   |              | 573          |
|  |              |              |   |              | 342          |
|  |              |              |   |              | 573          |
|  |              |              |   |              | 342          |
|  |              |              |   |              | 578          |
|  |              |              |   |              | 344          |
|  |              |              |   |              | 578          |
|  |              |              |   |              | 361          |
|  |              |              |   |              | 634          |
|  |              |              |   |              | 365          |
|  |              |              |   |              | 639          |
|  |              |              |   |              | 368          |
|  |              |              |   |              | 640          |
|  |              |              |   |              | 368          |
|  |              |              |   |              | 640          |
|  |              |              |   |              | 640          |
|  |              |              |   |              | 654          |
|  |              |              |   |              | 654          |
|  |              |              |   |              | 673          |
|  |              |              |   |              | 384          |
|  |              |              |   |              | 628          |
|  |              |              |   |              | 362          |
|  |              |              |   |              | 634          |
|  |              |              |   |              | 366          |
|  |              |              |   |              | 656          |
|  |              |              |   |              | 375          |
|  |              |              |   |              | 663          |
|  |              |              |   |              | 379          |
|  |              |              |   |              | 968          |
|  |              |              |   |              | 592          |
|  |              |              |   |              | 399          |
|  |              |              |   |              | 187          |
|  |              |              |   |              | 896          |
|  |              |              |   |              | 557          |
|  |              |              |   |              | 91           |
|  |              |              |   |              | 59           |
|  |              |              |   |              | 150          |
|  |              |              |   |              | 90           |
|  |              |              |   |              | 249          |
|  |              |              |   |              | 147          |
|  |              |              |   |              | 650          |
|  |              |              |   |              | 372          |
|  |              |              |   |              | 653          |
|  |              |              |   |              | 374          |
|  |              |              |   |              | 655          |
|  |              |              |   |              | 375          |
|  |              |              |   |              | 927          |
|  |              |              |   |              | 576          |
|  |              |              |   |              | 1073         |
|  |              |              |   |              | 654          |
|  |              |              |   |              | 274          |
|  |              |              |   |              | 169          |
|  |              |              |   |              | 328          |
|  |              |              |   |              | 195          |
|  |              |              |   |              | 597          |
|  |              |              |   |              | 339          |
|  |              |              |   |              | 1018         |
|  |              |              |   |              | 628          |
|  |              |              |   |              | 112          |
|  |              |              |   |              | 73           |
|  |              |              |   |              | 1015         |
|  |              |              |   |              | 627          |
|  |              |              |   |              | 322          |
|  |              |              |   |              | 192          |
|  |              |              |   |              | 421          |
|  |              |              |   |              | 259          |

## GENERAL ALPHABETICAL INDEX.

| Plat. C.                              | Plate | Claim | Plat. C.                     | Plate      | Claim                   |          |
|---------------------------------------|-------|-------|------------------------------|------------|-------------------------|----------|
| Williams, C.                          | 411   | 247   | Withers, A. Q.               | 202        | 123                     |          |
| Williams, W. B.                       | 531   | 326   | Witt, L. C. and Jones, W.    | Wright, A. | 80 55                   |          |
| Williams, W. B.                       | 608   | 152   | F.                           | Wright, A. | 582 345                 |          |
| Williams, J. M.                       | 849   | 549   | Wixson, R.                   | 353 213    | Wrigley, S. D.          | 614 356  |
| Williams, R. S.                       | 849   | 54    | Wolf, L.                     | 863 556    | Wright, F. W.           | 624 304  |
| Williams, W. B.                       | 1058  | 640   | Wolf, D.                     | 538 328    | Wright, A.              | 938 580  |
| Williamson, J. C.                     | 875   | 559   | Wolf, D.                     | 666 380    | Wright, S. H.           | 956 586  |
| Williamson, J. C.                     | 842   | 538   | Wolf, D.                     | 710 456    | Wyche, W. F.            | 413 247  |
| Willis, H. M.                         | 95    | 62    | Wolf, F.                     | 741 485    | Wyche, W. E.            | 522 324  |
| Willoughby, J. D.                     | 95    | 59    | Wolf, L.                     | 759 591    | Wyche, W. E.            | 522 324  |
| Willson, F. R.                        | 598   | 351   | Wonsey, P.                   | 1004 650   | Wymore, G. D.           | 605 353  |
| Willson, J. S.                        | 848   | 540   | Wood, J. W.                  | 2          | Yaggy, L. W. and Loop,  |          |
| Wilson, C. E.                         | 3     | 1     | Wood, S. S.                  | 144        | J. N.                   | 1006 671 |
| Wilson, J. M.                         | 270   | 167   | Wood, J.                     | 319        | Vaiday, T. N.           | 1004 670 |
| Wilson, J. L. and Haworth,<br>J. R.   | 312   | 189   | Wood, D. and Byington,<br>A. | 492        | Yeager, W. F.           | 532 327  |
| Wilson, L. S.                         | 596   | 350   | Wood, N. S.                  | 792        | Yeiser, C.              | 715 459  |
| Wilson, W. H.                         | 843   | 539   | Wood, J. and North, R.       | 1056       | Veiser, F.              | 641 368  |
| Wilson, J. F. and R. L.               | 888   | 554   | Woodbridge, S.               | 649        | Yocom, J.               | 615 357  |
| Wilson, L. E. and Mc<br>Canles, J. E. | 903   | 500   | Woodbury, J. L. and G.       | 709        | Yost, G. W. N.          | 202 105  |
| Wilson, J. T.                         | 1022  | 630   | Woodcock, B.                 | 514        | Yost, G. W. N.          | 544 331  |
| Wilt, S.                              | 64    | 49    | Woodcock, B. (A. L.)         | 111        | Yost, G. W. N.          | 545 331  |
| Wimpee, G. W.                         | 228   | 136   | Woodcock, B.                 | 510        | Yost, G. W. N.          | 1001 621 |
| Wimpee, G. W. and W.<br>F.            | 643   | 369   | Woodcock, B.                 | 602        | Young, C. M.            | 597 351  |
| Winans, R.                            | 601   | 449   | " (R)                        | 602        | Young, L.               | 115 75   |
| Winecoff, J.                          | 379   | 230   | Woodruff, C. F.              | 449        | Young, W. B.            | 105 98   |
| Wing, G. A.                           | 726   | 471   | Woodruff, T. T.              | 317        | Young, W. H. W.         | 216 130  |
| Wingate, R. H.                        | 288   | 173   | Woodward, W. A.              | 1043       | Young, J. H. W.         | 238 141  |
| Winger, J. G.                         | 263   | 165   | Woodward, J.                 | 94         | Young, W. T. and Moody, |          |
| Winslow, T.                           | 548   | 332   | Woodward, L. E.              | 517        | Young, J.               | 757 501  |
| Winston, R. B.                        | 526   | 325   | Woodsworth, L. S.            | 651        | Young, J.               | 751 499  |
| Winter, H. A.                         | 320   | 192   | Wooldridge, S. H.            | 657        | Young, J.               | 298 139  |
| Winters, E. C.                        | 793   | 514   | Wooldridge, S. H.            | 976        | Young, W. B.            | 567 339  |
| Winton, W. B.                         | 378   | 230   | Woolfolk, L. B.              | 596        | Ziegler, G. W.          | 523 324  |
| Wise, F. P.                           | 11    | 5     | Woolfolk, L. B.              | 1004       | Zeller, W. and Lechner, |          |
| Wise, W.                              | 306   | 186   | Woolley, J. F.               | 622        | R.                      | 44 35    |
| Wisner, H. E.                         | 156   | 93    | Workman, R. W.               | 351        | Zeller, J. P.           | 138 84   |
| Witherow, S.                          | 39    | 33    | Worline, C. E.               | 212        | Zeller, J. P.           | 705 454  |
| Witherow, S. and Peirce,<br>D.        | 461   | 291   | Wormell, W. E.               | 893        | Zocher, C.              | 278 170  |
| Witherow, S.                          | 512   | 320   | Orth, E. and Davis, C.       | 556        | Zoeberlein, J.          | 321 192  |
|                                       |       |       | WA.                          | 10         | Zimmerman, J.           | 754 499  |
|                                       |       |       |                              | 4          | Zollickofer, W. T.      | 851 541  |
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## ATTACHMENTS

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## ATTACHMENTS.

**6,562. J. STROOP**, Philadelphia, Pa. Seed-  
Planters. June 26, 1849.

Claim. Attaching the harrow B, to the plow, in the manner herein described and represented, that is to say, attaching the long arm C, at K, anterior to the colter and the short arm a, in the rear of the sheath, in the manner and for the purpose set forth.

**109. DAVID SWARTZ**, Tonis Brook, Va.  
(A. I.) to original Letters Patent No. 9,061.  
Plows.

Claim. Attaching the rake or harrow, to be combined with the plow, to the rear end of the mold-board by means of a crooked cam-lever, or bar and swivel g, in combination with the hand-lever i, whereby said rake can be conveniently raised or lowered by rotating it upon its axis of connection, to overcome obstructions, or to intercept its action.

**17,594. MISAJAH TOLLE**, Newport,  
Ky. Plows. June 16, 1857.

Claim. The bracket c, in combination with the plow beam d, constructed, arranged and operated, in the manner, substantially as and for the purpose set forth.

**44,535. JOHN LACY and GEORGE  
WATKINS**, Bristol, Wis. Stubble Cleaners  
for Plows. Oct. 4, 1864.

This invention consists in attaching a wooden or metallic plate to the mold-board in such a manner as to prevent the stubble from falling over the mold-board and clogging the plow.

Claim. Providing a plow with a plate B, when arranged substantially as and for the purpose herein set forth and described.

**73,002. JAMES HARSHA**, Circleville,  
Ohio. Plows and Harrows Combined. Jan.  
7, 1868.

The harrow is secured to the plow by the bars, and is held in such position as to harrow the freshly turned furrow.

Claim. The bar or chain A, lever B b, and chain D, arranged and applied, substantially as described, for the purpose of combining an ordinary plow and harrow.

**74,024. PHILANDER WONSEY**, Ogden, N. Y. Combined Plows and Harrows. Feb. 4, 1868.

The scraper and rotary harrow are connected to a bar pivoted to the land-side handle, and sliding in guides upon the other handle.

Claim. The combination of the harrow, scraper, and plow, and the manner in which they are attached and detached.

**75,455. JOHN D. PECK**, Triangle, N. Y.  
Plows. Mar. 10, 1868.

An inclined metallic plate extends from the top of the mold-board to the beam, and pre-

vents matters falling between the mold-board and land-side.

Claim. The application of a cap or roof to the common farm plow, as herein described, and for the purposes herein set forth.

**81,148. J. H. DICKSON**, Alford, Ind.  
Plows. Aug. 18, 1868.

The ends of the plate are bent up and slotted, and secured to the beam by bolts, so that it may be adjusted to change the depth of penetration of the clod-cutting knives.

Claim. The adjustable plate C, and the curved knives D D, when used in combination with a shovel or other plow, B, and its beam A, the several parts being constructed and arranged substantially as and for the purpose herein set forth.

**82,189. CHARLES E. WILSON**, Palmyra, N. Y. Assignor to himself, Putnam Wilson, Jr., and Philip Wilson, East New-port, Me. Attachments for Plows. Sep. 15, 1868.

Claim. The spring B, adjustable roller head D, and roller C, as an attachment for a plow, all constructed and operating substantially in the manner and for the purposes shown and described.

**82,753. WILLIAM RODGERS**, Linn-  
ville, Ind. Cultivators. Oct. 6, 1868.

The rake is hung on the end of the beam, behind and under which is the steadyng wheel, and a rod, attached near its center, with its top passing through the end of the beam, is adjsuted by means of a screw on top, the rake being also braced by rods, movably pivoted at its ends, projecting toward the main beam, thus allowing it motion, its teeth being slightly inclined inwardly.

Claim. The rake h, supported and braced as described by the vertical and lateral rods, and having itself vertical teeth, in combination with the cultivator, provided with the steadyng wheel H, all constructed and arranged as and for the purpose set forth.

**84,563. GEORGE W. MARSH**, Clinton,  
N. C. Plows. Dec. 1, 1868.

The upper portion of the mold-board is dispensed with so as to admit of the application of a harrow attachment.

Claim. The combination, with a plow A, of a harrow attachment, arranged and operating substantially as herein described and represented.

**95,925. ALBERT MOORE and FRIED-  
ERICH WENDEL**, Chillicothe, Ohio.  
Combined Plows and Harrows. Oct. 19,  
1869.

Claim. The combination of the harrow G, draught-rods H and I, and jointed catch-rods

J, with the plow A B C D E F, substantially as herein shown and described, and for the purpose set forth.

**99,236. ANTHONY A. RHOADES and WILEY TASH,** Berlin, Ill. Pulverizing Attachments for Plows. Jan. 25, 1870.

Claim. 1. The detachable blades D, constructed and secured to the supporting bar C, substantially in the manner herein shown and described, and for the purpose set forth.

2. The combination of the detachable blades D, adjustable supporting bar C, and adjustable brace bar E, with each other, said parts being constructed and connected with an ordinary plow frame, substantially as herein shown and described, and for the purpose set forth.

**116,388. CHARLES M. YOUNG,** Meadville, Pa., assignor to himself and Charles Gable, same place. Roller Attachments for Plows. June 27, 1871.

Claim. 1. The combination with a plow or cultivator, of a roller B, arranged in a frame C, and applied and operating substantially as and for the purpose herein specified.

2. The combination, with the roller and its swinging frame, of a hooked catch, arranged substantially as herein described, to be operated by the feet of the plowman.

**141,705. WILLIAM DONNELLY,** Calverton, N. Y. Plows. Aug. 12, 1873. Filed July 19, 1873.

An adjustable plate is attached to the rear end of the mold-board of a plow, which opens a trench for planting. In a subsequent furrow the plate-crank is replaced by another having several plates for covering.

Claim. The crank E, provided with one or more plates, G, and secured adjustably by a set-screw, F, to a bar D, attached to the mold-board of a plow, substantially as herein shown and described.

**143,620. LEONARD C. FROST,** Fredericksburg, Va. Plows. Oct. 14, 1873. Filed July 22, 1873.

For adjusting the beam of the plow vertically a cuff or clasp connected to the slanting standard surrounds the beam, engaging with a grooved plate, which is kept in position upon the side of the beam by a projection or teat, which enters the wood, allowing the plate to turn adjustably.

Claim. 1. The combination of a cuff and grooved iron, constructed substantially as herein described, with the beam and standard of a plow, as and for the purpose herein set forth.

2. The grooved iron A, having a teat upon its rear side, as and for the purpose substantially as described.

**144,584. EDWARD WIARD,** Louisville, Ky. Assignor to Benjamin F. Avery, same place. Plows. Nov. 11, 1873. Filed Sep. 24, 1873.

The runner is attached to the land-side of the plow-beam, and designed to run upon the

unplowed land and support the plow in an upright position. It is made adjustable to regulate the depth of furrows.

Claim. The land-side runner composed of the broad plate A, inclined standard B, angular and oblique brace C, and support D, all pivoted together and adapted for attachment to the land-side of the plow, and when attached is adjustable thereon by means of the slots in the arms of the standard B, and brace C', all substantially as set forth.

**150,450. EDWARD WIARD,** Louisville, Ky. Assignor to Benjamin F. Avery, same place. Land-side Runner for Plows. May 5, 1874. Filed Mar. 16, 1874.

Claim. 1. The land-side runner for a plow, connected by a swivel-joint to its support, substantially as described.

2. The combination of the box E, grooved on its front and rear sides in the manner described, the standard B, connected to the land-side runner A, the braces C, and the supporting spindle or bar D, substantially in the manner and for the purpose herein set forth.

**156,282. J. G. DARBY,** Fort Motte, S. C. Shade Attachments for Plows. Oct. 27, 1874. Filed Oct. 3, 1874.

A socket in the plow-standard receives a crank-arm having another socket at its upper end to receive the shade-handle. The angle is varied by a joint and arm held by a set-screw.

Claim. The improved shade attachment for plows and other implements, consisting of the socket B, crank A, and the socket E, the latter being jointed and adjustably braced to the crank, substantially as specified.

**159,267. JOHN A. JOHNSON,** St. Paul, Minn. Plows. Feb. 2, 1875. Filed Dec. 18, 1874.

An adjustable horizontal cutter attached to the land-side of the plow, to cut under the unplowed land.

Claim. 1. The combination of the laterally-projecting blade B, upright C, and flange D, substantially as and for the purpose hereinbefore set forth.

2. The combination of the cutter attachment, formed by the blade B, upright C, and flange D, with the bolt *a*, wedge E, and landslide A, substantially as and for the purpose hereinbefore set forth.

**159,416. P. JACOBUS and D. R. AMBROSE,** Romulus, N. Y. Harrow Attachments for Plows. Feb. 2, 1875. Filed Nov. 2, 1874.

The bar carrying the harrow-teeth is attached to the handle, and hinged or pivoted. The pivot-bolt has a square shoulder in the clamp to prevent its turning, and an arm extended at a right angle as a rest or stop for the bar.

Claim. The harrow attachment to a plow, consisting of the backwardly-curved hinged bar A and key-stop B in combination with the clamp C and handle D, all constructed as herein shown and described.

**159,913. SAM T. FERGUSON,** Minnopolis, Minn., assignor to the Monitor Plow-works, same place. Plow-Adjusters. Feb. 16, 1875. Filed Dec. 3, 1874.

A forked wedge, which, by reversing, will cause the plow to run to or from land.

Claim. The beam adjuster A, in combination with land-side B and upright or metallic beam C, substantially as described, and for the purposes specified.

**162,760. THOMAS J. MERONEY,** Salisbury, N. C. Plows. May 4, 1875. Filed Apr. 13, 1875.

An ordinary clip or staple holds the plow-standard to the beam, and the adjustment for a deeper or shallower furrow is affected by means of two flanged and notched wedges, embracing the upper and lower corners of the beam, opposite the standard.

Claim. The flanged and notched wedges covering the upper and lower angles of the beam opposite the standard, in combination with the standard beam, and cuff or gripe, as shown and described.

**174,251. PIERSON JACOBUS, and DAVID R. AMBROSE,** Romulus, N. Y. Said Ambrose assignor to said Jacobus. Harrow Attachments for Plows. Feb. 29, 1876. Filed Mar. 16, 1875.

An improvement on original Patent No. 159,416, Feb. 2, 1875, and consists of an adjusting-wedge for the harrow attachment, and an adjustable arm that carries the harrow-teeth.

Claim. 1. The combination, with the handle of the plow, of the hinged arm A, or sliding arm A', for the purpose of adjusting the teeth relatively with the wing of the plow, as shown and described.

2. The combination, with the arm A and stop f, of the removable gang-block B, as and for the purpose specified.

**174,618. HENRY L. CARRINGTON,** Charleston, Ohio. Riding Attachments for Plows. Mar. 14, 1876. Filed Jan. 10, 1876.

An attachment on which to ride, secured to the rear of the implement, and dragging in the furrow or track.

Claim. As an attachment to a plow, cultivator, or harrow, the slide a, in combination with the rod s, tubular rod o, and set-screw x, substantially as and for the purposes herein set forth.

**174,677. JONAS O. HOGMIRE,** South Avon, N. Y. Bean-Harvester Attachments for Plows. Mar. 14, 1876. Filed Feb. 4, 1876.

A horizontal cutter attached to the land-side of a plow for a bean-harvester.

Claim. The attachment B, constructed with an inclined blade b, and right-angled wing c, the blade widening from point to heel, and joining with the wing by a concave d, in the manner and for the purpose specified.

**193,225. JAMES COLES,** Milburn, Assignor of one-half his right to David B. Coles, Mount Olive, N. J. Wheeling-Plows. July 17, 1877. Filed Apr. 25, 1877.

A horizontal cutter projects from the mold-board, and has a vertical end surmounted by a ball. It is intended to cut the weeds just below the surface.

Claim. The cutter B, having the guard D, in combination with a plow, substantially as and for the purposes specified.

**200,047. WM. R. FOWLER,** Baltimore, Md. Attachments for Plows. Feb. 5, 1878. Filed Sep. 18, 1877.

A hinged curved bar, extending from the beam to the rear of the plow, to carry a rake and smoothing-board. Both may be used at the same time, or either separately.

Claim. 1. The improved plow attachment consisting of the detachable adjustable clamps E G, the curved pivoted-bar A, the brace or stay-bar F, and the rake and scraper attached to the bent arm of the bar A, as shown and described, for the purpose specified.

2. The adjustable scraper or smoothing-board and the rake, combined with a pivoted arm A, as shown and described.

**205,317. JOSEPH C. TEAGUE,** Wabash, Ind. Combined Plows and Harrows. June 25, 1878. Filed Apr. 23, 1878.

Claim. 1. In a plow, the combination, with the beam, mold-board, and handles, of the vertically-adjustable attachment, consisting of the horizontal bar D and vertical plate C, having the lateral extensions e e, and secured rigidly to the side of the beam B, and extended across the plow and over, with its outer end resting on, the top of the mold-board and against the handle B', and adapted substantially as and for the purpose set forth.

2. The combination of the slotted bar D, constructed with the vertical plate C, having the lateral extensions e e and secured to the side of the beam B, and extended across the plow and resting on top of the mold-board A, and against the front edge of the handle B', and the laterally-extensible arm E, having on its outer end a pivoted and vertically-swinging arm, e, arranged and adapted substantially as and for the purposes set forth.

**209,046. WILLIAM G. HIMROD,** Easton, Md. Combined Plows and Harrows. Oct. 15, 1878. Filed Mar. 4, 1878.

Claim. In combination with a plow having a bolt or projection, d, on top of its beam, the harrow G, arms, I I, and rods H H, flexibly connected together at a a, the bail L passing around the plow-beam and hooked upon the projection d, and the ends of the bail connected to the rods H by the removable pin b, forming a second joint, and the rear adjusting-chain, h, all constructed substantially as and for the purposes herein set forth.

## ATTACHMENTS.

**212,524. EDWARD WALKER,** New York, N. Y., Assignor to himself and William Walker, same place. Plows. Feb. 18, 1879. Filed Jan. 9, 1879.

An adjustable plow attachment for opening a trench for planting.

Claim. 1. The combination of the plate F, the connecting-rod J, and the lever K with the pivot E, attached to the mold-board D, and with the plow plate G and the plow-handle B, substantially as herein shown and described.

2. The combination of the projections or stops H I with the pivoted plate F, to which the plow plate G is attached, and with the mold-board D, substantially as herein shown and described.

**219,144. CALEB E. BROWN,** Jackson, Mich. Attachments for Plows. Sep. 2, 1879.

Filed Mar. 4, 1879.

Claim. In combination with the plow, the rod e, having a bend, and provided thereat with the pin h, and one end attached to the plow-beam and the other end to the handle, so as to permit it to be turned up and entirely over, and the harrow I, attached at the bend of the rod, and adapted to rotate, as set forth.

**220,790. ALFRED BELCHAMBERS,** Ripley, Ohio. Riding Plows. Oct. 21, 1879. Filed Mar. 15, 1879.

Claim. In combination with an ordinary plow, A B C D, having transverse bolt G, the riding attachment composed of frame E, axel H, wheel or wheels I, arm P, sliding foot Q, and slotted bolt F, all constructed and arranged to operate as described.

**224,223. LEVI PRICE,** Creston, Ill. Attachments for Plows. Feb. 3, 1880. Filed Dec. 5, 1879.

A side bracket is placed upon a plow or cultivator beam having on its outer end a plate and a vertically-sliding tooth-socket containing a spring and carrying a tooth designed to clear clods and stalks from corn-rows.

Claim. 1. The slotted disk C, in combination with plate d, socket e, spring f, and bolt g, substantially as and for the purpose set forth.

2. The spring-tooth g, socket e and plate d, in combination with the shoulders h of the disk C, spring f, and bolt e, substantially as and for the purposes set forth.

**225,079. BENJAMIN L. SIMS,** Greenville, Ga. Plow Attachments. Mar. 2, 1880. Filed Dec. 27, 1879.

Claim. The combination of the plow-beam A, having arms E E, adjustable bracket F, having mortise G, trimmer H, guard J, and wedge I, all constructed, combined, and operating substantially as and for the purpose set forth.

**226,657. ALBERT F. FROMM,** Canton, Ohio. Plow Attachments. Apr. 20, 1880. Filed Feb. 18, 1880.

Claim. 1. The combination, with the bar E, having the vertical part E', arranged to be

secured against the land-side of the beam and handle of an ordinary plow, and the horizontal part E'', extending across the plow, of the bar F, adjustably secured to the horizontal part E'', and the tooth-bar G, hinged to the adjustable part F, substantially as set forth.

2. The combination of the bar E, rigidly attached to the plow, the bar F, adjustably attached to the bar E, and the tooth-bar G, attached to adjustable bar F by a hinge, and provided with the stops or locking-projections g' g', substantially as set forth.

3. The combination, with a plow, of supplemental teeth arranged to be adjusted relatively to the plow by means of an extensible supporting-frame, and adjustable relatively to each other independently of the frame, substantially as set forth.

4. In an attachment for plows, the combination, with the stationary bar F and the tooth-bar G, hinged to the bar F', of the spring M, pivoted at one end of the stationary bar F, and having its free end to bear against the hinged tooth-bar when the teeth are at work and to be removed from said bar by a lateral rotation to allow the teeth to be thrown out of work, substantially as set forth.

**232,796. CHAUNCEY E. WORLINE,** Radnor, Ohio. Plow Attachments. Sep. 28, 1880. Filed July 28, 1880.

An adjustable arm on a plow-beam carrying a rake or weed gathering arm adjustable as to length, and with a spring to allow it to yield to obstructions.

Claim. 1. The combination of the plate B, provided with holes arranged in pairs, the arm E, provided with similarly-arranged holes, and the pins engaging with said holes, substantially as and for the purpose herein described.

2. The combination of the arm E, provided with the slot e, the raking-bar G, pivoted in said slot and provided with the notch g, and the spring H, carried by the arm E, substantially as and for the purpose herein described.

**233,815. RODNAY SORNSBERGER,** Stanbridge, Quebec, Canada. Oct. 26, 1880. Filed Aug. 18, 1880.

Claim. The combination, with the surface-shoe B, and its adjustable arms or standards C C, of the furrow-shoe D, vertically arranged, and its adjustable arms e e, forming a gage to regulate the depth and width of the furrow, substantially as specified.

**234,087. HENRY C. STRONG,** Mauston, Wis. Plow Trucks. Nov. 2, 1880. Filed June 3, 1880.

A truck arranged to lock the plow, and with a rigid handle.

Claim. In a truck for carrying plows, the handle E and the knob F, combined with the axle C, made flat on the upper side and provided with the flange D, as shown and described.

**237,023. WILLIAM G. KENNEDY,** LEONARD Z. PRESTON, FRANK-

**LIN A. MORAND, and EDGAR H. KENNEDY,** Warren, Kans. Revolving Harrow Attachments for Plows. Jan. 25, 1881. Filed Oct. 27, 1880.

Claim. The combination, with a turn-plow beam, of a skeleton cylinder, A B, set in a frame at a slight angle to the plows line of draft, and provided with rearwardly inclined teeth, as and for the purpose specified.

**246,666. THOMAS C. DODSWORTH,**

Ottawa, Kans., assignor of one-third to Atkinson H. Sellers, same place. Cultivator Attachments for Two-Wheeled Plows. Sep. 6, 1881. Filed Mar. 9, 1881.

Claim. 1. The combination of the cultivator-frame and a two-wheeled or sulky plow with a bar hinged to and connecting the said frame with the beam of the plow, and a standard connected with the plow in rear of the beam and secured to and supporting the said frame connecting bar, substantially as described, for the purpose specified.

2. The combination of the cultivator-frame, a two-wheeled or sulky plow, a bar hinged to and connecting said frame with the plow-beam, and a supporting standard of said plow, substantially as described, with a draft rod connected with the outer end of the cultivator frame and with the wheeled frame, substantially as described, for the purpose specified.

3. The combination of the cultivator-frame and a two-wheeled or sulky plow with a connecting bar, a supporting standard for said bar, and draft-rod *k*, the said bar being provided with a vertical slot, *e'*, for the joint-pin *j* of the cultivator-frame, substantially as described, for the purpose specified.

4. The combination of the cultivator-frame and a two-wheeled or sulky plow with the angular bar *e e' e''*, the standard *g g'*, the connecting-brace *i*, the clamping-clips *f h*, and the draft-rod, the said cultivator-frame and angular bar being connected by a hinge-pin, *j*, and the several parts being adjustable, substantially as described, for the purpose specified.

5. The combination of the cultivator-frame and a two-wheeled plow with a bar, *e*, hinged to and connecting said frame with the plow-beam, a standard, *g*, of the plow, supporting said bar, the draft-rod *k*, connecting the outer end of the cultivator-frame with the plow-frame, and the cord *p*, having a pulley-connection with said standard and leading from the outer end of said frame to the driver's seat, substantially as described, for the purpose specified.

6. A cultivator attachment for plows, consisting of the cultivator-frame, the angular or curved bar *e*, its supporting-standard *g*, the draft-rod *k*, and the supporting and lifting cord *p*, the said frame and angular bar being connected by a vertical slot, *e'*, and pin-joint *j*, substantially as described, for the purpose specified.

**252,820. RENSELAER UPDIKE,** Hector, N. Y. Plow Attachments. Jan. 24, 1882. Filed May 28, 1881.

Claim. The harrow attachment to a plow, consisting of the bar *D*, placed in V form with the beam, the forward connecting-rod *F*, the rigid arm *E*, hinged to the beam and having the shoulder or bearing *b*, and the cord *G*, whereby the harrow can be turned up and rest upon the plow-beam, substantially as specified.

**255,066. THOMAS P. WISE,** Richmond, Va. Plow Attachments. Mar. 14, 1882. Filed Dec. 9, 1881.

A land-side cutter to scrape the weeds and surface earth, with a vine-lifter serving as a guard, its curved rear end conducting the litter into the furrow behind the plow.

Claim. 1. The combination, with a plow, of an inclined blade, *a*, having its outer end slightly elevated above its inner end, and adjustably secured to the standard of the plow, and bent wing *k k'*, at right angles to the blade and secured thereto and having its upper edge rounded, substantially as described, and for the purpose set forth.

2. The plow attachment herein described, consisting of the inclined blade *a*, provided with the shoulder *c*, arm *d*, and threaded bolt *e* at its inner end, bent wing *k k'*, secured to the outer end of the blade and having its upper edge rounded and provided with the downwardly-projecting hook *k''*, at its front end, substantially as described, and for the purpose set forth.

3. The combination, with a plow-standard *g*, provided with a series of adjusting-holes, *i*, and recesses *j*, opposite the adjusting-holes, of the inclined blade *a*, having its outer end slightly elevated above its inner end and provided with the shoulder *c*, arm *d*, and threaded-bolt *e*, at its inner end, and bent wing *k k'*, secured to the outer end of the blade and having its upper end rounded, and hook *k''*, secured to the integral with the front end of the wing, substantially as described, and for the purpose set forth.

**255,981. PAUL P. HERBERG and PETER H. CLAUSSEN,** Gale, Wis. Plow Attachments. Apr. 4, 1882. Filed Feb. 6, 1882.

Claim. 1. The attachment to a plow-beam, consisting of the clamp-plates *D D'* and adjustable plate *E*, with clamp-socket *b f*, in combination with arm *G*, pin *H*, and plate *I*, all constructed and arranged substantially as described and shown.

2. The attachment to a plow-beam, consisting of clamp *D* and adjustable plate *E*, with clamp-socket *b f*, in combination with arm *G*, having clamp-plate *h*, for holding pin *H*, and plate *I*, secured by bolt *i*, all arranged substantially as shown and described.

**260,002. MORTIMER CAHILL,** Jacksonville, Ill. Harrow Attachments. June 27, 1882. Filed Mar. 7, 1882.

## ATTACHMENTS.

**1.** The combination, with a plow, of the harrow formed of a series of metallic bars of unequal length, and bent as shown, their central portions secured together by bolts or otherwise, and having their ends arranged so as to flare laterally in an outward direction, and formed with knife-edges, substantially as and for the purpose set forth.

**2.** The combination, with a plow, of the harrow arranged and attached substantially as shown and described, said harrow being constructed of metallic bars bent as shown, and secured together centrally, and having their ends flaring laterally in an outward direction, substantially as and for the purpose set forth.

**267,247. PETER E. PAULLIN,** Newville, Ohio. Agricultural Implements. Nov. 7, 1882. Filed Oct. 13, 1881.

Claim. The combined plow and harrow herein described, the harrow being secured to the plow and capable of adjustment with relation thereto and with the soil by the bell-crank lever E, pivoted to one side of the plow, the link h, connected to the short arm of the lever E, and with the lever I at the front end of its bent portion a, the lever I being pivoted on the plow-beam, and having its outer end in proper relation to be grasped by the attendant and drawn to the catch M, substantially as set forth.

**268,830. CHARLES E. SACKETT,** Morristown, N. J. Combined Plows and Pulverizers. Dec. 12, 1882. Filed Apr. 6, 1882.

Claim. **1.** In a plow, the combination of pulverizing devices operating in the furrow beside the plow with a forward plow or similar device to remove the sod or weeds and turn them below or out of the way of the pulverizing devices, substantially as set forth.

**2.** In a plow, the mold-board having a flat extremity, substantially parallel with the furrow, for the purpose of confining the earth in the furrow, in combination with pulverizing

devices, substantially as described and shown.

**3.** The combination, with a plow, of the pivoted bar carrying upturned teeth and adapted to drag in the furrow last made, whereby the teeth operate below and up through the soil turned upon them by the plow, as set forth.

**4.** In combination with a plow, upturned teeth or points attached to a drag adapted to operate in the furrow last made, for the purpose of pulverizing the earth turned upon them by the plow, said teeth being adapted to move vertically independent of the plow, and to be dragged—not rotated—in the furrow, as set forth.

**269,436. JOHN H. MANN,** Crafton, Texas. Colter Attachments. Dec. 19, 1882. Filed June 6, 1882.

Claim. The combination, with the mold-board having holes S, of the slotted shanks J, nut-bolt L, and the clamp T, as shown and described.

**269,564. NICHOLAS C. DECKER,** Windsor, Mo. Cultivators. Dec. 26, 1882. Filed Sept. 27, 1882.

Claim. In a cultivator, the combination, with the beams A A and shovels B B, of the horizontal knives D D, arranged to cut beneath the surface of the ground close up to the rows of plants, and made adjustable vertically and laterally outward and inward by means of the slotted angular bars C C and bolts d d, substantially as and for the purpose herein specified.

**269,677. BERNHART KEMPER,** Muscatine, Iowa. Cultivators. Dec. 26, 1882. Filed May 25, 1882.

Claim. The combination, with the plow a, provided with the beam h and handles i, of the inclined rake b, pivotally connected to the beam and one of the handles by the crank-arms e, and adjustably held in any desired position parallel with the beam by means of the angular perforated bar m and pins n, substantially as and for the purpose set forth.







## BEAMS

| <i>Plate</i>  | <i>Claim</i> | <i>Plate</i>               | <i>Claim</i> | <i>Plate</i>   | <i>Claim</i> |
|---|--------------|----------------------------|--------------|----------------|--------------|
| Alley, J. J.  | 39 20        | J. W.                      | 29 19        | Kimpfen, C.    | 27 18        |
| Alley, J. J.  | 31 20        | Burdin, L. E.              | 27 18        | McDowell, M.   | 28 19        |
| Babcock, E. H., Whiting,<br>J. C. and Chamberlain,<br>O. H. | 29 19        | Butterfield, J. C.         | 27 18        | McNeal, J. A.  | 32 21        |
| Ball, A.  | 26 18        | Chamberlain, W. C.         | 33 21        | Mathews, W. L. | 29 19        |
| Ball, A.  | 32 21        | Cockshutt, J. G.           | 31 20        | Miller, S. H.  | 26 18        |
| Ball, E. Jr.  | 26 18        | Fogelgesang, F.            | 25 17        | Moltrup, J. C. | 24 17        |
| Ball, W. J.   | 29 19        | French, C. M. and Fancher, |              | Nellis, A. J.  | 30 20        |
| Beach, E. O.  | 30 20        | W. H.                      | 24 17        | Peck, E.       | 25 18        |
| Boynton, J.   | 23 17        | Gale, H.                   | 28 19        | Preston, A. A. | 28 19        |
| Brinly, T. E. C.  | 28 19        | Gilman, W.                 | 25 17        | Rickard, A.    | 26 18        |
| Buckingham, C. P.   | 31 20        | Goodyear, A.               | 30 20        | Robinson, J.   | 25 17        |
| Buckley, R. C. and<br>Harmes, D. G.                         | 27 18        | Griffith, L. B.            | 23 17        | Seegmiller, S. | 32 20        |
| Bump, F. E. and Gear,                                       |              | Hall, J. S.                | 24 17        | Sharp, T.      | 23 17        |
|   |              | Houghton, J.               | 23 17        | Traxler, F.    | 24 17        |
|   |              | Hunt, F. B.                | 32 21        | Wiard, H.      | 31 20        |
|   |              | Johnson, J. A.             | 33 21        |                |              |

## BEAMS

**JOHN BOYNTON.** Plows. July 10, 1820.

No claim. The plow differs from all others in that it consists wholly of iron, and is cast in one entire piece, excepting the share and handles and these may be cast together with the body if required, but the handles are usually to be of wood, and the share to be separate so as to be taken off for sharpening or altering as desired.

**2,691. JOHN HOUGHTON,** Ogden, N. Y. Plows. June 22, 1842.

Claim. Constructing a beam of a plow in parts, or in other words to throw it apart or into parts centrally so as to increase the strength of a plow beam without increasing the weight in proportion, the manner of attaching the cutter to it, and the mode of fastening the beam and standard together thus doing away with the clogging of the plow and the perishableness of the beam.

**10,085. LEVI B. GRIFFITH,** Honeybrook, Pa. Plow-Beams. Oct. 4, 1853.

The rods  $a a a a$  are welded together at  $q$ .

Claim. Constructing a plow-beam of four round iron rods  $a a a a$ , centre-piece B, and clamps  $c c$  in combination, the rods being of uniform size from end to end, curved to the shape specified, and welded together at the places designated, the centre-piece and rods being held firmly in their position by the clamps.

**18,355. THOMAS SHARP,** Nashville, Tenn. Plows. Oct. 6, 1857.

Claim. Attaching the beam F, to the plow, substantially as shown, or in any equivalent way which will admit of the turning of the beam for the purpose of adjusting the draft hook or eye b, both laterally and vertically, as set forth.

**23,024. JOHN S. HALL,** Manchester, Pa. Plow-Beams. Feb. 22, 1859.

Claim. An iron or steel plow beam C, of an inverted U form throughout its main length, and welded or compressed at its ends, and so made as to be capable of receiving the top of the standard c into its hollow portion, and be otherwise conveniently connected to or with the other portions of the plow, so as to make a cheap and efficient junction of the several parts thereof, and produce a cheap, strong, and durable plow beam, as set forth.

**23,933. JAMES C. MOLTRUP,** Bu-cyrus, Ohio. Plows. May 10, 1859.

This invention relates to certain improvements in plows, by means of which the same plow may be made to cut a wide or narrow, deep or shoal furrow, and without increasing the weight or cost of the plow.

Claim. Giving the beam B B<sup>1</sup> longitudinal and vertical motion by means of the bearing

plates d<sup>2</sup>, slots e e<sup>1</sup>, short rear bolt b, and long vibrating front bolt f.

**32,094. FRANKLIN TRAXLER,** Saline, Mich. Plows. Apr. 16, 1861.

This invention consists of an arrangement of devices by which the angle or position of the beam in relation to the plow may be changed so as to adjust and regulate the draught.

Claim. The wedge B, knuckle K fitting into the socket L, flange C D, projection M fitting into recess N, the parts 1 and 2 having corresponding faces and bolt holes: the whole being made, arranged, and devised substantially in the manner and for the purposes set forth and described.

**35,600. C. M. FRENCH, and W. H. FANCHER,** Waterloo, N. Y. Combined Plow and Gun. June 17, 1862.

This invention consists in forming the beam of a plow of iron of cylindrical shape, having a bore and provided with a vent at its rear end, so that it may be used as a cannon when desirable.

Claim. The combined implement described, consisting of the hollow or tubular ordnance beam D combined with the parts B C and A of a plow, substantially as and for the two-fold purposes set forth.

**36,532. JOHN ROBINSON,** Hobart, N. Y. Plows. Sep. 23, 1862.

The beam of the plow is attached to the land side thereof in such a manner as to enable the beam to be capable of being adjusted—first, vertically and bodily in a horizontal position; secondly, to admit of the point or end of the beam being raised or lowered; and, thirdly, to allow a lateral adjustment of the beam either to the right or left.

Claim. Having the rear portion of the beam E made to fill or cover that portion of the land side between the handles D and the mold-board A, in combination with the triple adjusting slots b, bolts c, and land side C, as and for the purpose herein shown and described.

**59,577. FREDERIC FOEGELGESANG,** Canton, Ohio. Plows. Nov. 13, 1866.

The beam is attached to the land-side handle by two bolts which pass through the handle. The upper one is bent and passes through the beam and an eye in the lower one, where it is secured by a nut.

Claim. The improvement of two rods so bent and joined at the under side of the beam by a screw as to make them a continuous bolt through the beam and handle and firmly fastened by nuts and washers on the outside of said handle, as hereinbefore described.

**67,188. WILLIAM GILMAN,** Ottawa, Ill. Plow-Beams. July 30, 1867.

Claim. The employment for plow-beams

of a hollow and tapering wrought-iron pipe, substantially as described in the foregoing specification.

**82,157. EZRA PECK.** Chicago, Ill.  
Plows. Sept. 15, 1868.

A hollow plow beam is provided with flanges to keep it from buckling and serve as a means for riveting on strips which enable the beam to stand a greater gross strain. The inner face of the colter standard is rounded, and its cutting angle is controled by a clasp which is adjusted by nuts.

Claim. 1. A hollow sheet metal beam, when constructed with the flanges E E, as set forth, and for the purpose specified.

2. Constructing a hollow plow beam by riveting or otherwise properly fastening together the two parts, A and K, or their equivalent, for the purpose specified.

3. Constructing a hollow plow standard or beam, curved and bent in one continuous piece, directly from sheet metal, in the manner and for the purpose specified, as a new article of manufacture.

4. The slotted concave support, in combination with the beam A, and mold board z, all arranged as set forth.

5. Rounding or angling the inner bearing or face of the colter standard u, when used in connection with the clasp j, in the manner and for the purpose specified.

6. The beam A, strip K, fingers E E, slotted support o, and mold board z, all constructed and arranged as set forth.

**93,853. EPHRAIM BALL, Jr.,** Canton, Ohio. Plows. Aug. 17, 1869.

Claim. 1. So constructing a metal plow-beam as that it is made the basis of attachment for all the other parts of the plow, and that these parts, when so attached, are independent of each other, substantially as herein set forth.

2. The plow-beam A, constructed as described, and provided with flanges a and b, shoulder or offset c, raised surface or shoulder f, curved slot m, and projections n n, all substantially as and for the purposes herein set forth.

**110,722. ALBERT BALL,** Canton, Ohio. Iron Plow-Beams. Jan. 3, 1871. Antedated Dec. 29, 1870.

Claim. The metal plow-beam A, B, constructed of such form that a transverse section of the same at any point shall be of a U-shape, and that the vertex of any such section shall be on the lower or anterior side of the beam and its open part on the upper or posterior side of the beam, the lower end of said beam having the faces C, D, and E, on which the mold-board share, and land-side are placed, and upon which they are secured by bolts passing through the side of the beam, substantially as is herein specified.

**111,764. SAMUEL HOLDEN MILLER,** Hamilton, Ill. Plow-Beams. Feb. 14, 1871.

Claim. 1. The combination and arrangement of plow-beams B and C, the parts D and E, F and G, all constructed and operating as set forth.

2. The combination and arrangement of the front end of beam C, draft-rod I, bolt K, and double-tree L, all constructed and operating as set forth.

**111,975. ALEXANDER RICKARD,** Schoharie, N. Y. Plows. Feb. 21, 1871.

Claim. The flanged rotary perforated cap G, combined with a hollow beam D and draft-rod E, as set forth.

**121,153. LUTHER E. BURDIN,** Lexington, Ky. Plows. Nov. 21, 1871.

Claim. 1. The combination of the double beam D D, suitably connected at its forward ends, clamps E E', handles G G', standard C, mold-board A, and land-side B, all constructed substantially as set forth.

2. The combination of the double beam D D with guide d, draft-rod J, standard C, clevis H, and pivoted hooks, a a, all substantially as set forth.

**150,524. JOHN C. BUTTERFIELD,** Chicago, Ill., assignor to himself and Byron C. Bradley, same place. Plow-Beams. May 5, 1874. Filed Feb. 7, 1874.

A thin, light plow-beam is given sufficient strength by cross-flanged edges and diagonal truss-ribs on each side. It is cast entire, with seats for the attachment of the other parts.

Claim. 1. A plow-beam having a web, A, lateral flanges D E along the edges thereof, and diagonal truss-ribs B B, all substantially as described, and made solid in one piece.

2. A cast-metal plow-beam with a web, A, flanges D E, diagonal ribs B B, permanent clevis G, and seats for the permanent and ready attachment of the land-side, and mold-board, and land-side handle, constructed substantially as described, as a new article of manufacture and trade.

**156,331. R. C. BUCKLEY and D. G. HARMS,** Peoria, Ill. Plows. Oct. 27, 1874. Filed Sept 11, 1874.

The plow-beam is composed of two metal plates, parted in the centre to receive a wood filling. The rear end of the beam is laterally adjustable, and held by a combination of braces.

Claim. 1. The within-described plow-beam, consisting of the metal bars J J and intermediate wooden bar K, bolted or riveted together, substantially as herein set forth.

2. The combination of the upright G, brace E, and plat-form brace I, as and for the purposes herein set forth.

**158,642. CORNELIUS KIMPLEN,** Chicago, Ill. Plow-Beams. Jan. 12, 1875. Filed Apr. 14, 1874.

The cast-metal plow-beam is strengthened by flanged edges, and the several attachments and supports for other parts are cast solid with it.

Claim. 1. The combination of the beam A extensions B and C with the bracket G, all cast in one piece, substantially as and for the purposes specified.

2. The combination of the beam A, extensions B and C, brackets F and G, and clevis H, substantially as and for the purposes specified.

**158,725. MALCOLM McDOWELL,** Ravenswood, Ill. Metal Plow-Beams. Jan. 12, 1875. Filed Oct. 1, 1874.

A metal plow-beam of form fully described in the claim.

Claim. A metal beam for plows of the cross-section of an inverted T, tapering toward the clevis end of the beam, both in the base and web, and also tapering toward the land-side or rear end, the base diminishing and the web increasing in width until they form a plate of uniform thickness, with dimensions of area equal to that of the mid cross-section, substantially as shown and described.

**170,516. THOMAS E. C. BRINLY,** Louisville, Ky. Plows. Nov. 30, 1875.

Filed July 31, 1875.

The rear section of the beam is cast with flanged parts or seats, to receive the working parts of the plow, and the handles and double bars, to complete the beam.

Claim. A plow combining in its construction the curved cast-iron helve A, having flanges on the edges forming recesses on each side, to receive the beams, the correspondingly-curved parallel beams B, and handles D bolted in the recesses formed to receive them, substantially as set forth.

**180,634. ALVA A. PRESTON,** New Troy, Mich. Plows. Aug. 1, 1876. Filed May 9, 1876.

The beam is composed of three flat bars of iron secured by bolts and rivets. The rear end of the beam is made vertically and horizontally adjustable by means of slotted bars and set-screws.

Claim. 1. The plow-beam formed of the three bars E F G, connected together by the bolts D K L and their washers, substantially as herein shown and described.

2. The combination of the plow-beam E F G, the pivoted bolt D, the slotted cross-bar H, the bolt I, the slotted uprights M, the cross-bar N, and the swivel screws O with each other, and with the standard C, substantially as herein shown and described.

3. The combination of the set-screw P with the lug Q, formed upon the rear side of the standard C, and with the beam E F G, substantially as herein shown and described.

**189,722. H. GALE,** Albion, Mich. Plows. Apr. 17, 1877. Filed Jan. 4, 1877.

A skeleton beam formed of rods converging together at the front, and adjustably connected to a plate upon the standard.

Claim. The combination, with the standard B of the plow, of the plate C at the top

thereof, and the draft-rods D attached to such plate by means of screw-nuts placed on each side of the said plate, constructed and arranged substantially as described and shown, for the purpose set forth.

**198,773. WILLIAM L. MATHEWS,** Imlay City, Mich. Plows. Jan. 1, 1878.

Filed Sept. 11, 1877.

A sectional beam laterally adjustable at the joint, and held in any position by serrations, a bolt, and a collar. The colter has a forked brace running to the rear, upon which a jointer is secured.

Claim. 1. A sectional adjustable beam a, having its joint provided with notches b, and a circular flange, c, whereby it can be adjusted for one, two, or three horses, substantially as shown.

2. In combination with the beam a, made in two parts, and provided with the notches b and flange c, the colter g, jointer h, and brace i, the colter being fastened to the beam at the point to the rear of the joint, whereby the beam can be adjusted without interfering with the position of the colter, substantially as set forth.

**199,398. ELI H. BABCOCK, JOHN C. WHITING, and OLIVER H. CHAMBERLAIN,** Canandaigua, N. Y.

Plows. Jan. 22, 1878. Filed Nov. 8, 1877.

The standard and beam are united by horizontal plates which turn upon each other, and thus adjust the point of the beam to or from land.

Claim. The combination of the plow-beam D, having the slotted plate F, with the standard C provided with plate E, pivot-bolt G, clamping-bolt H, and eccentric pin I, substantially as herein shown and described.

**207,497. FRANK E. BUMP, and JOEL W. GEAR,** New Castel, Wis.

Plow-Beams. Aug. 27, 1878. Filed July 3, 1878.

A sectional plow-beam, the center composed of a plate sharply curved upward and landward, allowing free passage of stubble, &c., from the plow.

Claim. 1. A plow-beam provided with the curved casting A, constructed and operating substantially as shown and described, and for the purposes set forth.

2. A plow-beam consisting of the fixed section C and vertically-adjustable section B, united by the landward-curved casting A, and provided with the adjustable wheel M, substantially as and for the purpose set forth.

**214,986. WARREN J. BALL,** Canton, Ohio. Plow-Beams. May 6, 1879. Filed Jan. 14, 1878.

Claim. As a new article of manufacture, the plow-beam A B, bent from a single bar of metal, in the form herein shown and described, with its flange A increasing in width toward the rear of the beam, and at an angle thereto,

said flange forming a bearing for the mold-board and share, and the vertical portion B a bearing for the land-side, as specified.

**215,715. ERASTUS O. BEACH,** North Danesville, N. Y. Plows. May 27, 1879. Filed Mar. 20, 1879.

Claim. The beam C, curved laterally and splayed outwardly from its top downward in the direction of the land, and returning in a line forming the true direction of the plow, as and for the purpose set forth.

**218,517. ANDREW GOODYEAR,** Albion, assignor to William S. Lawrence, Kalamazoo, Mich. Plows. Aug. 12, 1879. Filed Mar. 14, 1878.

Standard having vertically-slotted convex flange, adapted to fit a horizontally-slotted concave flange upon rear end of plow-beam, and connecting-bolts passing through said slots, whereby said beam may be adjusted vertically or laterally.

Claim. 1. In combination with the parts of a sectional plow-beam, the ball-and-socket joint formed by the converse and concave flanges, fitted with corresponding corrugations and oppositely-inclined-slots, substantially as set forth.

2. A plow standard having a concave or convex laterally-slotted spherical rear end and connecting-bolts, substantially as specified.

**219,006. AARON J. NELLIS,** Pittsburgh, Pa. Plow-Beams. Aug. 26, 1879. Filed July 14, 1879.

Claim. 1. In a plow-beam composed of one or more longitudinally-corrugated blanks of sheet iron or steel, substantially as and for the purpose specified.

2. The plow-beam composed of two longitudinally-corrugated blanks, united by rivets, and arranged parallel with the concavities of the corrugations, facing each other, substantially as and for the purpose specified.

3. The plow-beam formed by the combination of two longitudinally-corrugated sections, arranged face to face, and two T-edge pieces, riveted between the corrugated sections at the top and bottom edges thereof, substantially as and for the purpose specified.

**226,150. JOHN J. ALLEY,** Albion, Mich. Plows. Apr. 6, 1880. Filed Jan. 8, 1880.

A middle plate radially grooved, with the standard for adjustment on or off, and on its upper side grooved parallel with the plate of the skeleton-beam to vertically adjust the clevis end.

Claim. The combination, with the plow-standard, A, provided with a central perforated lug, *a*, and radially-corrugated top plate, *b*, having side and central perforations of the plate B, having its lower face flat, radially corrugated, and provided with a central perforation, *d*, and slots *c*, and its upper face convex, with parallel end corrugations, concave upper plate, C, having end corrugations on its lower

face, and a central and side slots, and the skeleton-frame attached to the standard by bolts, substantially as described, and for the purpose set forth.

**229,216. HARRY WIARD,** Syracuse, N. Y. Plow-Beams. June 22, 1880. Filed Apr. 12, 1880.

Beam formed from an ordinary rolled bar of H form, fitted at front and rear to its attachment, a cast block forming the clevis end or finish.

Claim. 1. The plow-beam *a*, made without welding from a bar of wrought metal, with branches *b b*, formed by clipping from the rear end a triangular piece of the web of the bar, the braces being bent, as shown, to form an elastic beam at its attachment to the plow, substantially as described.

2. The wrought-metal plow-beam *a*, formed from a flanged bar having its front end formed as shown and described, in combination with the malleable head-piece *f*, fitted thereto, as set forth.

3. The heading-piece *f*, in combination with the flanged beam *a*, for forming the front end thereof, substantially as shown and described.

**230,457. JOHN J. ALLEY,** Albion, Mich. Plows. July 27, 1880. Filed May 27, 1880.

Claim. The combination with the plow-standard A, provided at its upper end with the smooth flat plat B, having bolt-holes *b a b*, of the skeleton-beam *c c' d*, having the smooth plate *h*, resting on the plate B, and provided with the parallel transverse slots *i i' i''*, the latter slot, *i'*, being shorter than the former slots, bolts *k*, and fastening-nuts *w*, whereby the plate of the skeleton-beam is adapted to be moved circularly on its central bolt and also endwise on the same, to adjust the draft-rods laterally and vertically, as described.

**231,147. CATHARINUS P. BUCKINGHAM,** Chicago, Ill. Plow-Beams. Aug. 17, 1880. Filed June 23, 1880.

Claim. In a plow-beam, the combination of an upper and a lower flange, A A', an upper and a lower fillet, C C', and a concavity, D, between the fillets, substantially as shown, and for the purposes described.

**238,651. JAMES G. COCKSHUTT,** Brantford, Ontario, Canada. Wrought-Iron Plows. Mar. 8, 1881. Filed Dec. 3, 1880.

Claim. The combination, with the standard C, of the wrought-iron bars A D, secured thereto, clevis-block B, secured to the bars A D, zigzag bar E, riveted at its angles alternately to the bars A D, sleeve G, and bolt F, substantially as described, and for the purpose set forth.

**242,844. SAMUEL SEEGMILLER,** Goderich, Canada. Plows. June 14, 1881. Filed Nov. 10, 1880.

A skeleton-beam with a cap having divided

arms to receive the several rods, and a concave base to rock upon the spherical head of the standard, and with slotted plates at the handle end for the two adjustments.

**Claim. 1.** The combination, with the plow-standard A, surmounted by a semi-spherical head having a conical hole, and provided with the open chamber b, of the cap B, concave on its under face, and provided with hole d, parallel ribs e, and channel f, bifurcated extension D, having base-plate g, skeleton-beam C, and bolt n, whereby the skeleton-beam is secured to the standard by a universal joint, substantially as described.

**2.** The combination of the standard A, having a convex head, and chamber b, cap B, constructed as set forth, bifurcated extension D, and skeleton-beam C, with the slotted handle-brace F, plate E, having slot o and ear r, and bolts n m s, substantially as described, and for the purpose set forth.

**246,363. ALBERT BALL, Canton, Ohio.** Plow-Beams. Aug. 30, 1881. Filed Feb. 25, 1881.

**Claim. 1.** A metal plow-beam of V-shaped form in cross-section, the sides thereof having upon their interior strengthening-flanges, substantially as and for the purpose set forth.

**2.** A metal plow-beam of V-shaped form in cross-section, the sides thereof increasing in thickness from its vertex to its outer edges, substantially as and for the purpose specified.

**3.** A metal plow-beam of V-shape in cross-section, having its sides increasing in thickness from its vertex to its outer edges, the interior of the sides of said beam being formed with strengthening shoulders or flanges, substantially as and for the purpose set forth.

**253,055. FRANKLIN B. HUNT, Richmond, assignor of one-half to D. B. Robbins, Economy, Ind.** Plows. Jan. 31, 1882. Filed July 5, 1881.

**Claim. 1.** In a plow, the beam A, formed with a broad solid rear end, and bent downwardly and laterally and closely fitting the mold-board, and extending down beneath the wing of the plowshare, and bolted to the wing of the share and mold-board, respectively, and independently of each other, and having a downwardly-turned portion, F, to which the landside of the share is bolted, substantially in the manner as and for the purpose herein shown and described.

**2.** In a plow, the beam A, formed with a broad and solid rear end, and bent downwardly and latterly to closely fit the mold-board and share, and arranged parallel with and between the land-side D and the line A', and bolted to the mold-board and wing of the share independently of each other, substantially in the manner as and for the purpose herein shown and described.

**253,407. JOHN A. M'NEAL, Montgomery County, Md.** Clamps for Plow-Beams. Feb. 7, 1881. Filed Dec. 20, 1881.

**Claim. 1.** A strengthening-clamp for plow-beams, constructed substantially as described, combining a straining-rod, a tightening device, and bearings for the rod, and adapted to be applied to and removed from the plow-beam, as set forth.

**2.** The combination, with a plow-beam, of a strengthening-clamp composed of a straining-rod, a tightening device, and bearings for the rod, substantially as described, whereby the beam may be re-enforced temporarily or permanently, as described, without interfering with the standard or attachments of the plow.

**3.** The combination, with the plow-beam, straining rod, tightening device, and bearings, of a grooved metallic plate or plates applied at or near the end of the beam, substantially as described.

**4.** A strengthening-clamp for plow-beams, composed of a U-shaped straining-rod adapted to run each side of the plow-beam, a tightening device, and bearings for the rod, substantially as described.

**5.** In a clamp for strengthening a plow-beam, the combination of a U-shaped straining rod, a tightening-screw or its equivalent, bearings for the rod, and bearing-plates at or near the ends of the beam, substantially as described.

**263,528. JOHN A. JOHNSON, Madison, Wis.** Plow-Beams. Aug. 29, 1882. Filed Apr. 10, 1882.

**Claim.** A tubular plow-beam and standard composed of a single metallic tube suitably bent and shaped to form the beam and standard in one piece, the part forming the beam being circular and the part forming the standard oval in cross-section by flattening it sideways, as set forth.

**267,061. WILLIAM C. CHAMBERLAIN, Dubuque, Iowa.** Plow-Beams. Nov. 7, 1882. Filed June 22, 1882.

**Claim. 1.** A wrought-metal beam, A, constructed with the thick portion a and thin portions a' a'', substantially as described.

**2.** In a metal beam, A, the combination of the thin portion a', thick portion a, thin portion a'', and widened foot b, substantially as and for the purpose described.

**3.** A metal beam comprising the thick portion a, thin portions a' and a'', which latter are terminated in the clevis-attaching portion c and the plow-attaching portion b, and the metal forming the entire beam formed and proportioned substantially as and for the purpose described.

**4.** The combination, with the beam having the thick portion a, thin portions a' a'', and the portions b c, of the plow-handle braces g, substantially as and for the purpose described.

**5.** The combination, with the beam having the thick portion a, thin portions a' a'', and the portions b c, of the clevis D and clevis-brace f, which latter is attached at d'' to the thin portion a', at a point above the thick

portion  $a$ , while the clevis is attached at  $d'$  to the thin portion  $c$ , substantially as and for the purpose described.

6. A wrought-metal beam in its cross-section

having the form of an inverted cross, or with its short lateral arms or branches nearer the bottom than the top of the beam, substantially as and for the purpose described.







## CLEAVERS.

| <i>Plate</i>                            | <i>Claim</i> | <i>Plate</i>          | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>                   |
|---|--------------|-----------------------|--------------|--------------|--------------------------------|
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| Bills, E. C., Jr.                       | 49<br>33     | Gingrich, J. K.       | 42<br>40     | 34<br>33     | Reeder, A.<br>Stone, W. H.     |
| Black, A. C.                            | 46<br>36     | Gitt, D. D.           | 49<br>51     | 37<br>37     | Storm, J. H.<br>Storm, J. H.   |
| Blatchley, N.                           | 39<br>33     | Glasoe, O. J.         | 47<br>49     | 36<br>37     | Terrel, T.<br>Thompson, N. S.  |
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| Boggs, A. B.                            | 54<br>38     | Gordon, C. M.         | 48<br>46     | 36<br>38     | Vaughan, G. B.                 |
| Burr, G. W.                             | 49<br>37     | Groom, R.             | 48<br>46     | 36<br>36     | Veber, W. Jr.                  |
| Clarke, G. B.                           | 42<br>34     | Harper, C. A.         | 47<br>52     | 37<br>38     | Wallace, J.                    |
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| Cockley, D.                             | 41<br>33     | Hibbs, J.             | 40<br>44     | 33<br>35     | Warren, D.                     |
| Coombs, W. G.                           | 48<br>36     | Huntington, W. S.     | 44<br>45     | 35<br>35     | Warren, O. F.                  |
| Cornell, T. J.                          | 42<br>34     | Jameson, J.           | 47<br>45     | 36<br>35     | Webber, A. P.                  |
| Deal, J. J. and Hobbs, S.               | 51<br>37     | Mattoon, A. B.        | 50<br>47     | 37<br>36     | Witherow, S.                   |
| Denise, S. T.                           | 45<br>35     | Metcalfe, W. W.       | 46<br>44     | 36<br>35     | Woodcock, B.                   |
| Devereaux, C. P.                        | 45<br>35     | Miles, J. and E. P.   | 47<br>47     | 36<br>36     | Zeller, W. and Lechner, R.     |
| Dock, J. F.                             | 52<br>38     | Miles, J. and E. P.   | 50<br>51     | 37<br>38     | 44                             |
| Dyer, C. V.                             | 53<br>38     | Norris, J. B.         | 46<br>47     | 36<br>36     | 45                             |
| Eccles, W. M.                           | 48<br>30     | Patterson, J. A. B.   | 47<br>53     | 36<br>38     | 40                             |
| Elward, J. H.                           | 46<br>35     | Paul, D. H.           | 50<br>53     | 36<br>38     | 43                             |
| Ford, E. T.                             | 42<br>34     | Phillips, B. F.       | 46<br>47     | 36<br>36     | 45                             |
| Gautier, F.                             | 54<br>39     | Place, J. B.          | 50<br>50     | 37<br>37     | 37                             |

## CLEANERS.

### SAMUEL WITHERON, Gettysburg, Pa.

Plows. July 15, 1836.

No claim. The improvement consists in placing a roller under the beam near the center of the plow in or near a perpendicular position, the roller may be made plain, rigid, grooved or otherwise, the use of the roller is to prevent the plow from echoing by the vegetable matter that usually collects under the beam.

### 5,855. WM. W. METCALF, York Springs, Pa. Plows. Oct. 17, 1848.

Claim. The combination of the lever I, with the plow; for the purpose of clearing obstructions from the colter, whether the same be constructed, arranged and operated as herein described, or in any other manner substantially the same.

### 5,973. NEVI BLATCHLEY, Windsor, N. Y. Plows. Dec. 19, 1848.

Claim. Removing the earth and other adherent obstructions from the surface of the mold-board of the plow by means of a scraper D, mounted upon a spring lever d, which renders it self-acting, and which may also be operated by a spring n, one end of which is attached to either the lever or scraper and the other held in the hand of the plowman, the several parts being constructed and operated substantially as herein set forth.

### 7,274. JAS. F. REASIN, Darlington, Md. Plow Cleaners. Apr. 9, 1850.

Claim. The plow cleaner constructed of two shave blades, substantially as herein set forth, for the purpose of cutting in two the weeds and other obstructions, which accumulate upon the colter, and thus detaching them therefrom.

### 7,344. DANIEL D. GITT, Buckler Township, Pa. Plow Cleaners. May 7, 1850.

Claim. The combination of the lever, notched arm, and vertical wheel B, with a conical roller placed under the beam and upon the cutter of the plow as above described, for the purpose of operating the conical roller and cleaning the plow in the operation of plowing, as set forth.

### 7,640. DAVID WARREN, Gettysburg, Pa. Plow Cleaners Sep. 10, 1850.

Claim. The combination of the vibrating finger clearer, with the beam and sheath of the plow, said finger clearer being arranged in such a manner in relation to the sheath or throat of the plow, that by the use of the hand of the plowman, to elevate and depress a lever, a series of curved or straight fingers will be made to vibrate back and forth, adjacent to the sheath, and clear away straw, stubble, and

other obstructions therefrom, as described and set forth.

### 11,935. JONATHAN HIBBS, Tullytown, Pa. Plows. Nov. 14, 1854.

This invention consists in placing a toothed roller on each side of the colter; one of said rollers extending back beyond the standard of the plow, and being driven by a band which passes over a pulley upon the driving-wheel, also turns the other roller by means of cog-wheels, for the purpose of cleaning the colter of grass or weeds. The inventor is aware that a rocking-shaft has been employed, its teeth being made to vibrate in front of the colter by the hand of the plowman.

Claim. Combining with a plow the revolving weed-clearing rollers, armed with teeth or spikes, said rollers being operated automatically by a wheel attached to the back part of the plow, in the manner and for the purpose substantially as described herein.

### 15,919. EDMUND C. BILLS, Jr., Perry, N. Y. Plow Cleaners. Oct. 21, 1856.

The invention consists in suspending upon and in front of the colter and above the cutting-edge of the same, an inverted ribbed cone, capable of rotation by pressure of grass against it, so as to carry off said grass laterally, and thus free the colter from the grass.

Claim. The employment upon the front of a colter of an inverted cone, having spiral flanges thereon, self-acting by the upward pressure of the grass to free the colter, substantially as set forth.

### 20,300. ABNER REEDER, Wrightstown, Pa. Plow Cleaners. May 18, 1858.

Claim. The spring slide rod E, with any convenient number of prongs, when connected to, and arranged on, the plow, as and for the purpose set forth.

### 21,598. DAVID COCKLEY, Lancaster, Pa. Plow Cleaners. Sep. 28, 1858.

Claim. 1. The adjustable cutter-wheel N, cleaner W, and devices V X Y Z, when arranged with the regulator C, in combination with the beam F, and the whole constructed for operation conjointly, as and for the purpose set forth.

2. The mode of arranging and fastening the point c, share d, and land-side with its cutter j, so as to hold them with the short screw k, and plate l, in combination with the mold-board h and beam F, substantially as described,

### 21,953. JOHN GEHR, College of St. James, Md. Plow Cleaners. Nov. 2, 1858.

Claim. The hollow corrugated roller a, in combination with the mold-board c, brace g, and guard f; the whole being constructed and

arranged substantially in the manner and for the purposes set forth.

**29,741. BANCROFT WOODCOCK,**  
Williamsburg, Pa. Plows. Aug. 21, 1860.

Claim. 1. the cutter C, as set forth, in combination with the corresponding fitting part in the face side of the land-side L, and the upper part of the land-side made sharp, that when it and the cutter are united, they form one continuous cutter, as substantially described, when said parts are combined with the mold-board M.

2. The arrangement of the movable point P, with its sections as set forth, and the share S, with its upper and lower sections, as stated, and the knob  $\wedge$ , on the lower edge of the land-side L, for the purpose named, in combination with the point and share, as specified above.

3. In combination with the above, I also claim the arrangement of the clevis D and circular saw A; the whole being constructed as and for the purpose set forth.

**31,452. JOSEPH K. GINGRICH,** North Anville, Pa. Plows. Feb. 19, 1861.

The driving-wheel rotates upon an axle attached to the swinging-bar N, and can be raised from the ground by the rod P. This wheel, by means of a connecting rod, operates the crank I, giving the bar k, which is crescent shaped at its extremity, a downward and thrusting movement for clearing grass &c., from the standard and bar. The team is attached to the rod H, the rear end of which is fastened to the bent lever I behind the standard and under the beam, one arm of this lever extending under the beam, and connected by the rod g to the curved spring J, thus forcing the plow down to its work, the spring obviating the injurious effects of concussions.

Claim. The arrangement of the driving-wheel L, elevating rod P, swinging rod N, connecting rod L', crank h, clearer k, beam G, rod h, crank I, spring J, and handles F F', with the plow body A A' B B' C D D', as and for the purpose shown and described.

**35,147. E. T. FORD,** Stillwater, N. Y. Plows. May 6, 1862.

To the rear end of the main beam is united the rear section, which is provided with slots so as to allow of its adjustment to the right or left. The front section consists of two flanged pieces placed on each side of the main beam, and is connected to the rear section by side-rods. These side rods pass through the cross bar near its extremities, and the slot upon the under side of the cross bar, through the lower part of which the center bar passes, prevents the rods from turning it to either the right or left.

Claim. The peculiar arrangement and construction of a truss plow-beam, consisting of the sectional parts, the rear section g, front section I, cross bar X, the side rods V V and the double box e e, as connected to the center

bar e e, the whole combined as described and represented.

**42,838. GEORGE B. CLARKE,**  
Leonardsville, N. Y. Plows. May 24, 1864.

This invention consists in the arrangement under the plow-beam and nearly over the point of the share of an arm or "vibrating lever," which is operated by means of a connecting-rod or link extending upon the upper side of the beam to the rear, and attached to an arm placed within reach of the operator for the purpose of removing any obstruction from before the plow. At the side of the beam is also a bar, enlarged at its front end, and arranged to slide forward and backward to remove stalks, &c., into the sweep of the above mentioned vibrating arm.

Claim. 1. The vibrating lever K, working under the plow-beam to remove the stalks, straw, or other obstructions from before the plow.

2. In combination with the lever K, the link M and arm G to operate the lever K, substantially as described.

3. The traversing bar I, for the purpose of pushing the stalks, straw, and other obstructions into the sweep of the lever K or from before the plow.

**52,807. THOMAS J. CORNELL,** Decatur, Ill. Plows. Feb. 20, 1866.

This invention consists in the arrangement of conical cutter-wheels with the plate or cover of the plow whereby the earth is cut or pulverized thoroughly as it is thrown up and turned over by the mold-board, while at the same time the plate or cover prevents the earth from falling over and between the mold-board and landside, thereby preventing the draught wheel from being clogged by the dirt.

Claim. 1. The plate or cover G placed between the upper edges of the landside and mold-board when used in connection with the wheel E, for the purpose specified.

2. The wheel I, constructed and arranged substantially as shown, journalled on a horizontal axis set obliquely to the line of draught, and rotated by contact with the furrow slice.

**53,100. WM. J. M. BATCHELDER,**  
Dayton, Ohio, and **CELESTIN LEIBER,**  
Harrisburg, Pa. Plows. March 13, 1866.

This invention consists in the construction of a device attached to a plow for the purpose of removing the grass, stubble, or other material which impedes the operation of plowing.

Claim. 1. The clog-piece  $\alpha$  and slide  $d$ , constructed and operating substantially as described, when connected to a plow-beam, for the purpose specified.

2. The combination of the clog-piece  $\alpha$ , slide  $d$ , lever  $g$ , bar  $h$ , and lever  $i$ , constructed and arranged substantially as described and for the purposes set forth.

**56,296. OSCAR F. WARREN,** Pem-  
broke, N. Y. Plow Cleaners. July 10, 1866.

The vibrating clearer is pivoted to the beam, and operated by a handle to remove weeds from the front of the sheath.

Claim. 1. The adjustable levers O G F, so connected and arranged that the clearing lever may be operated either in front of a colter or in front of the plow standard, for the purpose and substantially as set forth.

2. Connecting the operating lever O to the plow handle, and within easy and convenient grasp of the hand of the plowman, so that the said operating lever will also serve as a handle to guide and hold the plow, substantially as set forth.

**57,216. TIMOTHY TERREL,** Spring Hill, Ohio. Plow Cleaners. Aug. 14, 1866.

The bent end of the sliding-rod pushes the trash away from the colter.

Claim. The sliding-rod D, applied to a plow, substantially in the manner as and for the purpose herein set forth.

**58,323. WILLIAM VEBER, Jr.,** Shingle Creek, N. Y. Plows. Sep. 25, 1866.

The clearer is bent around the standard and colter, is reciprocated by attachment to a wrist on the plow wheel, and acts to push obstructions from the colter.

Claim. The rod F, attached to a plow, when constructed and operated as herein shown, substantially and for the purpose as described.

**61,083. J. and E. P. MILES,** Bloomingdale, Ind. Plows. Jan. 8, 1867.

A plate is projected by a lever in a forwardly curved direction beneath the beam and immediately before the post to dislodge the weeds therefrom. It is retracted by a spring.

Claim. The arrangement of the curved sliding-plate e connected with the elbow lever arm m by the rod n, and operated by the arm m', in combination with the spring p or its equivalent, for cleaning a plow of grass and weeds, substantially as herein described.

**61,203. WILLIAM S. HUNTINGTON,** Byron, Mich., assignor to himself and C. P. Devereaux, North Newburg, Mich. Plows. Jan. 15, 1867.

The elbowed lever is oscillated by a draw-bar to clear weeds from the breast of the plow.

Claim. The iron elbow scraper a suspended to the beam A of a plow, in combination with the drawing-rod b, arranged and operating substantially as and for the purpose herein described.

**63,838. WILLIAM ZELLER,** Lebanon county, and **RICHARD LECHNER,** Berks county, Pa., assignors to James Wallace, Lebanon county, Pa. Plows. Apr. 16, 1867.

The lever operates the rod longitudinally to thrust obstructions from the breast of the plow.

Claim. The jointed rod D D' used in combination with the beam and the handle H, as and for the purpose specified.

**64,213. GEORGE GIBBS,** Canton, Ohio.

Plows. Apr. 30, 1867.

A double action lever within reach of the plowman is connected with and operates the pivoted stubble cleaner.

Claim. The lever a, rod b, joint c, and slot d, constructed, arranged, and operating in the manner and for the purpose set forth.

**66,109. JAMES WALLACE,** Sheridan, Pa. Plows. June 25, 1867.

The rod slips in staples beneath the beam when the handle is oscillated, and its end pushes away trash which has collected in the angle between the beam and the standard.

Claim. The jointed rod D D', used in combination with the beam and the handle H, as and for the purpose specified.

**66,809. C. P. DEVEREAUX,** North Newburg, Mich. Plow-Cleaners. July 16, 1867.

Claim. 1. Forming a wing or extension d' upon or attaching it to the rear side of the lower part d<sup>2</sup> of the cleaner D, substantially as herein shown and described and for the purpose set forth.

2. The combination of the lever F with the connecting rod E and handle C, substantially as herein shown and described, and for the purpose set forth.

**67,550. JACOB JAMESON,** Philadelphia, Pa. Cleaning weeds from Plows. Aug. 6, 1867.

The rotating wheel is pivoted to a sliding stem that passes through a staple on the beam and is vibrated by a spring to which it is attached. Its purpose is to clean weeds and stubble off the breast of the plow.

Claim. The wheel A attached to the sliding or yielding stem and held down by a spring, when applied to a plow, substantially as and for the purpose set forth.

**71,715. S. T. DENISE,** Red Bank, N. J. Plows. Dec. 3, 1867.

The horizontal roller turns in the furrow behind the share, and communicates rotation to the vertical clearing roller at the breast of the plow.

Claim. The combination, in a plow, of the vertical roller E with the horizontal roller I, the latter rotating the former, substantially in the manner and for the purpose specified.

**83,768. JOHN H. ELWARD,** Polo, Ill. Plows. Nov. 3, 1868.

The colter is attached to the beam by a rounded shank arranged nearly vertically between its edge and the beam. A roller is

made to turn freely on the shank, and another is placed on the outer end of its extension.

Claim. The combination of the colter D, the rounded shank or rod D', and rollers attached thereto, substantially as and for the purpose set forth.

**84,823. C. A. HARPER,** Wheeling, Ind. Cultivators. Dec. 8, 1868. An improvement on his patent of Jan. 7, 1868.

The forward part of the frame is hinged or jointed so that the wheel may have a vertical movement and adjust itself to the unevenness of the ground. The flanged shaft or clodder is formed at its end with a ball which works in a slot in the lower part of a swinging arm, the upper end of which is pivoted to the frame.

Claim. 1. Connecting the wheel D to the cultivator beams or frame A, by means of the hinged or jointed slotted plate or frame E, substantially as herein shown and described, and for the purposes set forth.

2. Securing the flanged shaft H or clodder in its bearings, by means of balls or heads formed upon the ends of said shaft, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the swinging arm J with the rear end of the flanged shaft or clodder H, and with the frame of the cultivator, substantially as herein shown and described, and for the purpose set forth.

**89,237. JAMES A. B. PATTERSON,** Springfield, Ill. Plow-Cleaners. Apr. 20, 1869.

Claim. 1. The above-described device for cleaning plows, consisting of the cleaner A, connected with and suspended from the beam of the plow by the pivot bars D and E and the guides F and G, and operated by means of the lever B, substantially as and for the purposes before set forth.

2. The pivot bars D and E, in combination with the guides F and G, connecting and suspending the cleaner A to the beam of a plow, substantially as shown and for the purpose described.

**90,488. ANDREW C. BLACK,** Kaukauna, Wis. Plow-Cleaners. May 25, 1869.

Claim. The combination and arrangement of the lever L, cord c, spring D, cord e, and stop B, in the manner and for the purpose described.

**91,328. S. T. GODFREY,** Seaville, N. J. Plows. June 15, 1869.

Claim. 1. The combination of the pivoted knife I, connecting-rod G, lever F, and wheel E, having pins e', projecting from its side, with the plow A B C D, substantially in the manner herein shown and described, and for the purpose set forth.

2. The combination of the spring-guide K, with the plow A B C D, substantially as herein

shown and described and for the purposes set forth.

**91,464. A. B. MATTOON,** Auburn, N. Y. Coulter-Cleaners. June 15, 1869.

Claim. The combination of the clearing-arm D and wheel B, when constructed and arranged to operate substantially as herein described, for the purpose specified.

**61,957. J. MILES** and **E. P. MILES,** Pleasant Hill, Ohio. Plow-Cleaners. June 29, 1869.

Claim. The combination, with a plow, of the curved sliding cleaning-bar A, when arranged to be adjusted vertically, and from side to side of the beam, substantially as specified.

**62,350. D. H. PAUL,** De Witt, Iowa. Cultivators. July 6, 1869.

Claim. The application of reciprocating saws to a cultivator, in the manner substantially as shown and described, for the purpose of cutting or severing weeds or trash, which may adhere to the plow or share standards, and stripping it from the latter, as set forth.

**92,959. RICHARD GROOM,** Albany, N. Y. Cleaning Plows. July 27, 1869.

Claim. 1. The shear-blade A, in combination with colter B, substantially as herein shown and described.

2. The horizontal share-blade C, and the two-edged movable share-blade A, in combination with an upright blade or colter, B, substantially as herein shown and set forth.

**105,660. WILLIAM M. ECCLES,** St. Louis, Mo. Devices for Preventing Plows From Choking. July 26, 1870.

Claim. 1. The application of the roller A to the plow, running from the beam F to the land-side H, to prevent the plow from choking.

2. The arrangement of the roller A, rod E, platform C, base D, land-side H, and beam F, constructed to operate as described.

**106,556. WILLIAM G. COOMBS.** New Gloucester, Me. Plows Aug. 23, 1870.

Claim. The combination and arrangement of the lever a, pivot b, pivot c, arm d, pivot e, lever f, pivot h, arm i, pivot k, slotted slide j, with its confining bolts in the slot, and cleaners m n, arranged on opposite sides of the colter and share respectively, applied as herein described.

**111,155. MARINUS VAN DUINE** and **JAN DE JONGE,** Zeeland, Mich. Manure-Rake Attachments for Plows. Jan. 4, 1871.

Claim. The rake D, in combination with the wheels F and H, hangers I and C, and bearing E, and connected to the beam B of the plow A, all constructed substantially as de-

scribed and shown, and arranged to operate as and for the purposes set forth.

**113, 421. CHARLES M. GORDON,** La Porte, Ind. Plow-Colters. Apr. 4, 1871.

Claim. The combination of the reel D and cutter A B, as and for the purposes set forth.

**114, 220. WARREN H. STONE,** Lebanon, Mich. Plow-Colters. Apr. 25, 1871.

Claim. The combination of the wheel A, sheave B, pronged sheave-wheel C, clasp and axel D and F, with endless chain E, or their equivalents, all for the purposes and substantially as described.

**114, 881. NELSON S. THOMPSON,** Richmond, Ind. Cultivators. May 16, 1871.

Claim. The arrangement of the trash-cleaner h, adjustable clamps a b c d, and guide-frame D, in combination with the convertible wheel C, so that the latter may be used to propel the trash-cleaner h or serve for a fender, in the manner and for the purposes specified.

**122, 155. GEORGE W. BURR,** East Line, N. Y. Plow Cleaners. Dec. 26, 1871.

Claim. The clearing-wheel A, provided with curved or downward-projecting teeth, arranged in the throat of the plow, as shown and described.

**130, 832. ALANSON P. WEBBER,** Saratoga Township, Marshall county, Ill. Plows. Aug. 27, 1872.

The cavities of the journals are made point upward to prevent the accumulation of sand.

Claim. The rotary feeder B, having pivotal pin g, and socket i, in combination with stop f, projecting arm B, and shovel d, substantially as set forth.

**132, 857. JOHN B. PLACE,** Auburn township, Susquehanna county, Pa. Plow-Cleaners. Nov. 5, 1872.

The forked rod H straddles the plow-beam. It is vibrated by the rotation of the guide-wheel.

Claim. The combination, with a plow having beam A, standard B, and wheel D, of the rod G having a hook at its front end and its rear end forked to straddle the plow-beam, adjustable disk b, and swivel-eye a, all substantially as and for the purposes set forth.

**139, 036. GEORGE B. VAUGHAN,** Peoria, Ill. Plows. May 20, 1873. Filed Oct. 15, 1872.

The axes of the roller is adjustable at its lower end so as to vary the angle. A projection of the mold-board forms a shield for the axis.

Claim. 1. An adjustable plate, in combination with roller D, for regulating its angle so as to facilitate the discharge of weeds or stalks from the plow, substantially as set forth.

2. The combination of the adjustable plate

g, shield c, roller D, standard C, and beam B, substantially as set forth.

**145, 120. JOHN B. NORRIS,** Richmond, Va. Plows. Dec. 2, 1873. Filed Sep. 10, 1873.

The plow-standard has two branches which pass through the beam, and both are cylindrical. The forward one is provided with an outer cylinder, the interior of which is fitted with anti-friction balls, so that it will turn with ease, and thus avoid clogging.

Claim. The combination of anti-friction balls with a roller, cylinder, or drum, m m, and neck or stem J K I of a plow, in the manner as shown in Fig. 3 and 5, for the purpose substantially as set forth and described.

**147, 036. HARVEY BLUE,** Medina, Wis. Plows. Feb. 3, 1874. Filed Nov. 22, 1873.

To the gage-wheel of the plow are attached two curved connecting-rods. One reaches to a knife on the land-side of the colter, and gives it a longitudinally vibrating movement. The other is attached to the crank-arm of a pivoted curved hook, and gives it motion across the throat of the plow.

Claim. The hook K and bar L, connected with the wheel E by the rods H l and cranks F G, in combination with the plow-beam A and plow C, substantially as herein shown and described.

**154, 323. JOSIAH J. DEAL and SAMUEL HOBBS,** Wilmot, Ohio. Plow-Cleaners. Aug. 25, 1874. Filed Sep. 5, 1873.

A plunger is placed just below the beam at the standard, and a rod leads backward and upward to the handles. By drawing upon the rod, the plunger is thrust forward, carrying with it whatever may have accumulated in front of the standard.

Claim. The combination of the slotted clearer G, having both a sliding and swinging movement, the pivoted vibratory lever H, fixed pivot-guides l, and operating-rod L, in the manner and for the purpose herein specified.

**164, 727. OLE J. GLASOE,** Laneshorough, Minn. Plows. June 22, 1875. Filed Mar. 25, 1875.

A belt or endless chain is operated by an oblique land-side wheel. The chain carries cutter-blades or clearers projecting downward.

Claim. 1. In a plow, the endless chain or band E, provided with clearers f, substantially as and for the purpose set forth.

2. The combination of the wheel or disk D, having the concentrically-arranged cogs h, with the pinion g, shaft d, pulleys b c, and chain E, having cutters F, substantially as and for the purpose set forth.

**164,784. THEODORE WALLIS, SCIPIO, and OSCAR J. CASE, Auburn, N. Y.** Plow-Colter Cleaners. June 22, 1875. Filed Mar. 13, 1875.

Claim. The combination, with the sod-cutter D and the wheel H, of the crank-rod I, the loop J, formed of one and the same piece with the crank-rod, and the bow K, having guide-eyes, substantially as and for the purpose described.

**180,166. JAMES H. STORM, Mitchellville, Iowa.** Attachments for Cleaning Plows. July 25, 1875. Filed May 8, 1876.

The rod having clearing device is provided with a treadle, which connects with a spring secured to the handle. By pressing the foot upon the treadle, the rod is thrown forward and clears the plow. When the pressure is removed, the spring will draw the rod back into position.

Claim. The reciprocating shaft *a*, doubled at its front end, to form a weed-catching device, *c*, and carrying the treadle-block *g* at its rear end, in combination with the bearer *b*, carried by the plow-beam, and the spring *d*, carried by the plow-handle, substantially as and for the purposes shown and described.

**181,674. STEPHEN M. HARRIS, Forest Grove, Oregon.** Plows. Aug. 29, 1876. Filed May 16, 1876.

Claim. The bow shaped spring F, carrying the clearer C, in combination with the beam and plow standard, and geared with a wheel, D, suspended from the beam, substantially as specified.

**189,087. J. F. DOCK, Elkhart, Ind.** Cleaning Attachments for Plows. Apr. 3, 1877. Filed Mar. 3, 1877.

A roller is journaled in a frame, which is secured to the plow-beam, and a hook is hinged to a support, which is secured to said frame, for the purpose of drawing stubble, weeds, &c., into the furrow.

Claim. The combination of the frame A, roller B, support C, hook D, and spring E, substantially as herein shown and described.

**190,165. JAS. H. STORM, Mitchellville, Iowa.** Plow Cleaning Attachments. May 1, 1877. Filed July 25, 1876.

The cleaner held against the front and land side of the standard by a spring drawn front and toward the furrow by a handle attached to its horizontal arm.

Claim. As an improved article of manufacture, a plow-clearing attachment, composed of the bent and pivoted weed-catcher *b*, having an elbow-form branch, *f*, and handle *g*, the skeleton bracket *c*, and the spring *d*, substantially as and for the purposes shown and described.

**190,781. B. F. PHILLIPS, Lowden, Iowa,** assignor to N. Henry, same place. Stubble-Guards for Plows. May 15, 1877. Filed Apr. 2, 1877.

The construction and shape of the hooks or cleaners at the lower end of the bar A.

Claim. A plow-cleaner constructed with arms *a* *a'*, shaped, arranged with respect to each other, and applicable as shown and described.

**190,826. G. B. CLARKE, Leonardsville, N. Y.** Plows. May 15, 1877. Filed Mar. 31, 1877.

Self-operating cleaner. When the rod is drawn backward, it thrusts a spur downward into the ground, and the forward movement of the team operates the cleaner. A spring returns the parts to their former position.

Claim. 1. The pivoted lever G, provided with the pivoted clearing teeth or points *a*, in combination with a spur, arranged to be forced into the ground, whereby the draft of the team causes said lever to be thrown forward and upward, substantially as herein set forth.

2. The combination of the lever G with clearing-points *a*, connecting-bar 1, shaft *d*, with arms J P, the spur S, and pin *p*, substantially as and for the purposes herein set forth.

3. The combination of the rod R, loose lever L, slotted spur S, shaft *d* with arm P, having pin *p*, substantially as and for the purposes herein set forth.

4. The combination of the lever G with clearing-points *a*, connecting-parts 1 J, shaft *d*, with arm P, having pin *p*, the spur S, connecting-wire *w*, and the spring O, all constructed and arranged to operate substantially as and for the purposes herein set forth.

**205,574. HOMER T. RECTOR, Clinton, (Cady P. O.,) Mich.** Plow-Clearers. July 2, 1878. Filed May 4, 1878.

Claim. The combination, with the plow-beam, of clip E, hook-staple F, the forked bar G, provided with crank-arm H, arranged to make a half-revolution when swung forward, and the rod I, having hook at its rear end, as and for the purpose specified.

**213,878. CHARLES V. DYER, Elgin, Tex.** Plows. Apr. 1, 1879. Filed Nov. 9, 1878.

Claim. The plow-attachment for cleaning the mold-board of plows described, consisting of the said mold-board A, having slot A' *a*, the scraper B, lever C, and their connections, as and for the purpose set forth.

**236,298. ALDEN B. BOGGS, Covington, Ohio.** Plow-Clearers. Jan. 4, 1881. Filed July 12, 1880.

Claim. 1. The combination, with a plow, of the revolving arm D, formed at one end with curved arm *d* and at the other with crank-arm *d'*, and adapted not only to collect and discharge the weeds and stalks from the mold-board, but at the same time, in its revolution, to clear the landside from adhering earth and soil, substantially as set forth.

2. In combination with a plow, a revolving clearing-arm formed with curved hook-arm  $d$  and crank-arm  $d'$ , the latter attached to the jointed lever E, substantially as and for the purpose set forth.

3. The combination, with a plow, of jointed lever E, clevis  $a$ , and revolving clearing-arm D, having curved hooked arm  $d$  and crank  $d'$ , all constructed and arranged to operate substantially as and for the purposes described.

**254,952. FERNANDO GAUTIER,**  
Pascagoula, Miss. Plows. Mar. 14, 1882.  
Filed Jan. 13, 1882.

The spoke-wheel, by its contact with the ground, revolves gearing, which rotates an eccentric which vibrates the cutting-plate, which makes a shear cut against both upper and lower jaws.

Claim. 1. In a plow, the combination, with the oscillating cutter G, of the stationary adjustable cutters E and F, substantially as shown and described, whereby the stationary cutters may be adjusted toward each other to take up wear and utilize the whole of their cutting-edge, as set forth.

2. In a plow, the beam A, having its forward end enlarged and provided with a vertically-flaring recess, in combination with the T-shaped clevis M, having a horizontal projection, P, substantially as shown and described, and for the purpose set forth.

3. In a plow, the combination of the beam A, having a deep longitudinal recess in its rear end, and the handles R, having standard Q, pivoted in said recess, and adapted for adjustment to a higher or lower position, substantially as shown and described, and for the purpose set forth.





## CLERKS.

| <i>Plate</i>                         | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>                        | <i>Plate</i> | <i>Claim</i> |
|--------------------------------------|--------------|--------------|-------------------------------------|--------------|--------------|
| Adams, C.                            | 66           | 50           | Gibbs, R.                           | 83           | 50           |
| Adams, A.                            | 83           | 56           | Gillert, I. R.                      | 100          | 64           |
| Alden, L. W.                         | 69           | 51           | Hall, J. S.                         | 67           | 50           |
| Atmsby, J. M. C.                     | 63           | 49           | Hartzell, C.                        | 82           | 55           |
| Arnold, J. H.                        | 84           | 56           | Harvey, E. O.                       | 85           | 57           |
| Atteberry, W. W.                     | 75           | 53           | Hawes, B. B.                        | 86           | 57           |
| Austin, H. W. and<br>Shaw, W.        | 70           | 52           | Hawse, B. B.                        | 89           | 58           |
| Axford, W.                           | 79           | 54           | Holton, G. W.                       | 73           | 53           |
| Baldwin, J. L.                       | 74           | 53           | Hovis, J. T.                        | 81           | 55           |
| Baldwin, T. B.                       | 88           | 58           | Hubbell, M.                         | 102          | 65           |
| Ball, J.                             | 72           | 52           | Ingraham, H.                        | 70           | 52           |
| Ball, J.                             | 72           | 52           | Iwan, H. and L.                     | 98           | 63           |
| Bateman, F.                          | 101          | 64           | Jackson, C. L.                      | 76           | 54           |
| Baughman, S. P.                      | 100          | 64           | Jackson, W. B., Childs,<br>J. W.    | 82           | 56           |
| Bednar, J. F.                        | 97           | 62           | Jennings, W. A.                     | 99           | 64           |
| Bement, E.                           | 68           | 50           | Jerauld, H. F.                      | 77           | 54           |
| Bilz, J. A.                          | 73           | 53           | Jerauld, H. F. and Stolle,<br>J. W. | 93           | 61           |
| Blair, R. A. and<br>Reed, J. B.      | 68           | 50           | Johnson, D. M.                      | 93           | 60           |
| Brinly, T. E. C.                     | 76           | 54           | Kagance, E. R.                      | 81           | 55           |
| Brison, J.                           | 78           | 54           | Kaufman, A.                         | 82           | 56           |
| Carman, A.                           | 63           | 49           | Keech, J.                           | 68           | 51           |
| Chase, J. F.                         | 89           | 58           | Kennedy, D. A.                      | 92           | 60           |
| Chase, J. F.                         | 92           | 60           | Kidwell, G. W.                      | 76           | 54           |
| Church, M. C.                        | 101          | 65           | King, D. H. and Hulse,<br>W. M.     | 83           | 56           |
| Coonley, J. C. and<br>Buckius, A. O. | 90           | 50           | King, A. B.                         | 89           | 58           |
| Culver, M. A.                        | 103          | 65           | Kinney, W.                          | 92           | 60           |
| Cunningham, J. T.                    | 100          | 64           | Lahman, W.                          | 84           | 56           |
| Dailey, A. A.                        | 79           | 54           | Lash, J. S.                         | 65           | 50           |
| Dailey, S. H.                        | 80           | 55           | Latimer, J. B.                      | 79           | 54           |
| Darrow, G. P.                        | 69           | 51           | McCall, E. R.                       | 98           | 63           |
| Depew, G. W.                         | 97           | 50           | McCall, E. R.                       | 99           | 63           |
| Dills, O. P.                         | 60           | 51           | McCullan, A.                        | 78           | 54           |
| Dow, T.                              | 75           | 53           | Machin, T. N.                       | 87           | 58           |
| Duling, C. F.                        | 103          | 65           | McKinley, H.                        | 80           | 55           |
| Eaton, J. M.                         | 88           | 58           | Masters Wm.                         | 66           | 62           |
| Eddy, W.                             | 70           | 51           | Matthews, E. G.                     | 72           | 52           |
| Edwards, W. H.                       | 80           | 59           | Meech, C. L.                        | 63           | 49           |
| Ellis, J. F. and<br>Robinson, C.     | 94           | 61           | Merrill, F. C.                      | 86           | 57           |
| Ells, C. S.                          | 97           | 62           | Miller, R. J.                       | 70           | 54           |
| Elmer, C. R.                         | 71           | 52           | Miller, J. G.                       | 87           | 57           |
| Erkson, G.                           | 65           | 49           | Mitchell, J. F.                     | 97           | 63           |
| Estes, H.                            | 96           | 62           | Morrison, J. B.                     | 88           | 58           |
| Evans, I.                            | 64           | 49           | Myers, I. L.                        | 97           | 63           |
| Evans, E.                            | 73           | 53           | Napier, J.                          | 81           | 55           |
| Falker, P.                           | 74           | 53           | Nason, C. O.                        | 84           | 56           |
| Flanagan, J.                         | 83           | 56           | Newhart, J.                         | 101          | 64           |
| Fliedner, L.                         | 73           | 53           | Noble, H. T.                        | 71           | 52           |
| Foss, C. H.                          | 85           | 57           | Nourse, J. and Howe,<br>J. A.       | 93           | 60           |
| Frederick, S. H.                     | 74           | 53           | Olson, J. A.                        | 88           | 58           |
| Gale, H.                             | 92           | 60           | Palm, J. H.                         | 90           | 59           |
| Gallagher, P.                        | 63           | 49           | Palmer, F. A.                       | 101          | 64           |
| Gibbs, L.                            | 70           | 51           |                                     | 65           | 49           |

## CLEVISSES.

**791. AARON CARMAN**, Columbus, N. J. Plow-Clevises. June 20, 1838.

Claim. 1. The upright piece L, attached to and raising above the front and upper cover of the clevis F, with one or more square openings to receive a tongue N.

2. Tongue N, with double horizontal swivels J K and also the iron brace T, as herein described.

**4,292. PATRICK GALLAGHER**, Chambersburg, Pa. Plow-Clevises. Nov. 26, 1845.

Claim. The mode of raising and lowering and confining the ring against the inner side of the front or vertical part of the clevis, by means of a segment grooved-wheel, or head, raised and lowered by a vertical screw turning in a female screw, in the upper or horizontal part of the clevis; by which combination and arrangement the weakening of the clevis, arising from the necessity of cutting the usual notches in it for holding the ring is avoided, and the dropping of the ring is prevented; the said segment grooved-wheel holding the ring against the front part of the clevis at the height desired, and made adjustable to any required level, for various depths of plowing, as set forth.

**4,466. JOSHUA M. C. ARMSBY**, Worcester, Mass. Plow-Clevises. Apr. 18, 1846.

Claim. The circular-plate with the cogs, teeth or projections thereon, in combination with the guide, having ribs, splines or projections formed on it in the manner and for the purpose described: to prevent the lower end of the guide being moved laterally or sideways by the power of the team.

**4,544. CHARLES L. MEECH**, Preston, Conn. Plow-Clevises. May 28, 1846.

Claim. Making one arm of the clevis to extend back to within reach of the person who holds the plow, to which arm a regulator is attached for governing and securing the same and thus giving any desired pitch to the plow without stopping or checking the team, using for the construction of the same, the most proper, cheap and durable material which will produce the intended effect.

**7,430. SAMUEL WILT**, Hagerstown, Md. Plow-Clevises. Sep. 3, 1846.

Claim. The combination of the horizontal and vertical adjusting apparatus, constructed as herein described, by which the adjustment can be made either way with the minutest exactness.

**5,016. JOHN VAN BROCKLIN**, Middleport, N. Y. Plow-Clevises. Mar. 13, 1847.

Claim. The construction of a double-gauged cast-iron clevis, substantially as described.

**5,581. ISAAC EVANS**, Lebanon, Ohio. Plow-Clevises. May 16, 1848.

Claim. The adjusting apparatus, consisting of the movable block to which the draught-ring is attached and the bridge supporting the vertical adjusting-screw in combination with the clevis, the adjusting-screws and beam, by which I am enabled to alter the position of the point of draught vertically and horizontally, with any degree of nicety, without having to weaken the beam by a special perforation for an adjusting bolt.

**7,608. JOHN B. STONER**, Southampton, Pa. Plow Clevises. Sep. 10, 1850.

Claim. 1. Forming a plow clevis by means of two arcs of metal, of corresponding outward curvatures, having the point of attachment of the draught link to the martingale, for their common center of curvature, in the manner and for the purposes herein set forth.

2. In combination with a fixed horizontal arc, having a slot between bearing edges, the vertical arc having notches on its inner curve, adapted to the bearing edges of the fixed arc, whereby the direction of draught may be varied horizontally or vertically, as required.

**7,651. GARRETT ERKSON**, Hobart, N. Y. Plow Clevises. Sep. 17, 1850.

Claim. 1. Making a clevis with teeth or prominences, and cavities on the front surface of a socket, matching with corresponding depressions or cavities, and elevations on the surface of a movable bar, that the bar and socket when set together by a screw or other equivalent fastening in the required position, may have numerous bearings, and be wholly prevented from either sliding or revolving in any direction, without breaking the continuity of materials of which the parts are composed.

2. In combination with a series of radial ridges, or a circle of cavities on the end of a clevis socket fixed at the extremity of the plow beam, a series of teeth, or of conical points on a movable clevis bar, so adjusted to each other that the guide hole of the clevis bar may be held in any required position, and at any necessary distance from the axis, of the beam, without relying on friction of the surfaces to prevent slipping, in the manner and for the purpose herein set forth.

**15,743. EDWIN A. PALMER**, Clayville, N. Y. Clevises. Sep. 16, 1856.

By putting the pin B, with the arms E, down through the openings F in the projection I, and turning one-fourth round, the spring A will press the pin and arms back into the recesses I; the spring will keep the arms in these places and prevent the pin from turning, and

thus obviate the friction. This arrangement avoids the use of a screw on a pin, or a key to keep the pin in its place.

Claim. The pin provided with a spring, and arms E E, in combination with the projection in the head, and openings through which the arms may pass, and the recesses I I, arranged substantially as and for the purposes set forth.

**17,462. J. D. WILLOUGHBY,** Pleasant Hill, Pa. Plow Clevises. June 2, 1857.

Claim. The stem B and button C, with the grooves E, in combination with the cylinder and its elevations i, the whole being arranged and operated in the manner and for the purpose substantially as described.

**18,459. JOHN S. LASH,** Carlisle, Pa. Plows. Oct. 20, 1857.

Claim. The arrangement of the long, flat, and straight spring C on top of the beam, and the combination of the same, thus arranged with the draught rod E, by means of the elbow lever, substantially as and for the purposes described.

**24,403. R. B. PRINDLE,** Coventry, N. Y. Devices for Securing Clevises to Plows. June 14, 1859.

Claim. The arrangement of the pin C, feather or rib e, spaces e e, clevis B, beam A, and groove a, as described, for the purposes set forth.

**28,337. CALVIN ADAMS,** Pittsburgh, Pa. Clevises for Plows. May 22, 1860.

Claim. 1. Constructing the loose end piece of the clevis with hooked ends, fitting into suitable slots in the shanks, for the purpose of forming a connection between the outer extremities of the shanks, and at the same time sustaining the end piece in its proper position, without any bolt or other fastening for that purpose.

2. Combining with a plow clevis, constructed as described, a projection, or lug on one of the shanks, in the manner and for the purpose set forth.

**30,766. FREDERICK SIGRIST,** Napa county, Cal. Clevises. Nov. 27, 1860.

Claim. Making that end of the clevis A, which is to receive the perforated end of the bolt B, with a hole h, closed at the bottom at d, for the purpose described.

**30,813. JOHN S. HALL,** Manchester, Pa. Plow Clevises. Dec. 4, 1860.

Claim. The making of a clevis by bending down and around the piece of metal, so as to enclose and rigidly hold a strengthening plate in its bends or folds, substantially as described.

**31,565. WILLIAM F. SHEDD,** Ripley, Ohio. Plows. Feb. 26, 1861.

This invention consists in an arrangement of parts for the purpose of adjusting the clevis so

as to regulate the depth of plowing, or to give more or less land as may be desired.

Claim. The arrangement of the pivoted bracket F, stirrup G, and regulating screws m and o, to operate in combination with the clevis E, in the manner and for the purposes specified.

**31,761. G. W. DEPEW,** assignor to Horton, Depew & Sons, Peekskill, N. Y. Plows. Mar. 19, 1861.

The clevis is formed with three holes in its front part and a recess in the rear forming arms, which are provided with pins on their inner sides to fit into notches in the plow beam, by which means the plow may be adjusted to a greater or less pitch, and the casual attachment of the clevis prevented.

Claim. A clevis B, provided with arms h h, which have pins i i projecting therefrom, in connection with a plow beam A, having flanges aa at the upper and lower edges, and provided with an inclined front end a', and notches e e, all arranged as and for the purpose set forth.

**32,489. L. M. STEARNS,** Cardiff, N. Y. Plows. June 4, 1861.

The object of this invention is to attach a whiffletree to a plow clevis in such a manner that the whiffletree will not get under the horses feet in turning the plow, it being kept up by the pin g; and also, that the beam will have a much better purchase on the plow in turning it, and keep the beam steady in heavy plowing; at the same time the improved clevis will admit of all the adjustments desirable, and it will be strong and substantial.

Claim. Combining with clevis A, constructed and applied to the plow beam, as described, the forked coupling iron, consisting of the arms h h, pivoted to the clevis by pin f, and arms i i, embracing the whiffletree, and pivoted thereto by the pin k, and the check pin g, all arranged and operating as described.

**33,066. R. A. BLAIR and JOHN B. REED,** New Philadelphia, Ohio. Plow Clevises. Aug. 20, 1861.

The shanks of the clevis in this plow extend back and are secured by a bolt to the beam near the plow standard. On the front part of the beam is fitted a rectangular metal clasp, which is allowed to slide in a direction transversely with the beam. Through the sides of the clasp passes a screw rod, by turning which, the clasp is made to move the clevis one side or the other, and thus give to the plow "more or less land" as may be required.

Claim. The employment or use, in combination with the clevis B, of the clasp E, and screw rod F: the whole being applied to beam A of the plow, substantially as and for the purpose set forth.

**36,446. EDWIN BEMENT,** Fostoria, Ohio. Plow Beams. Sep. 16, 1862.

Upon each side of the plow beam is a lateral

brace, consisting of a rod secured to the rear of the beam at its downward curve by means of lugs, and secured by nuts. The forward end of the rods are formed into links, which pass over the lateral extension of the clevis and fit in a recess at either end of the same. The pin upon which the clevis is secured fits in a slot in the beam, so that, when the center of the clevis shall occupy the rear end of the slot, the draught will be constantly thrown upon the rods.

Claim. The lateral braces C C, attached to the clevis at any point, and to the hinder part or downward curve of the beam, or to the standard, by means of the lugs B, or their equivalent, in combination with the slot H and clevis bolt I, all these parts being constructed and operating substantially as and for the purpose set forth.

**38,394. JOSEPH KEECH,** Waterloo, Seneca County, N. Y. Plow-Clevises. May 5, 1863.

The clevis consists of a toothed and slotted plate, through which the draught-rod passes, and which may be rotated on a disk wheel, which itself may be varied in its set on the notched end of the beam; the effect of this four-fold toothed arrangement being to give the draught-rod any required lateral or vertical adjustment in its relation to the end of the beam.

Claim. The dial-plate C, provided with cogs  $\alpha\alpha$  on one side, engaging with the cogs  $\beta\beta$  of the beam, and with concentric radial teeth  $g\,g$  on the other side, engaging with the index plate D, that sustains and adjusts the draught-rod, substantially as and for the purposes herein set forth.

**42,401. DANIEL RHODES,** Pawtuxet, R. I. Plows. Apr. 19, 1864.

This invention consists in the employment of a vertically moving frame arranged upon the front end of the plow-beam, and operated by means of a lever extending back to near the plow handle, under control of the operator of the plow, for the purpose of varying the line of draught so as to cause the point of the share to penetrate the ground at a greater or less depth, and thereby regulate the depth of the furrow as may be desired.

Claim. The arrangement of the vertically moving frame H, arms f, roller R, and loop E, with the clevis I, beam A, lever F, and guide G, all in the manner herein shown and described.

**48,844. ANDREW SHOGREN,** Sandwich, Ill. Plow-Clevises. July 18, 1865.

This invention consists in arranging in that part of the clevis exposed to wear, hard cast iron, in such a manner as to be easily detachable, when required to be removed.

Claim. Providing a clevis with a cast-iron lining or jacket, substantially as set forth and specified.

**49,733. O. P. DILLS,** Falmouth, Ky. Plows. Sept. 5, 1865.

In this invention a small arm is pivoted at the front end of a plow-beam, and carries a caster wheel. The said arm is adjusted upon a rack at the driver's seat, and elevates or depresses the caster wheel. A rigid arm extends out at right angles to the plow-beam, carries a seat, and is furnished with caster wheels for its support.

Claim. The adjustable bar F, with the wheel I, rack J, wheel D, and standard C, in combination with the rigid arm B, all constructed and arranged substantially as shown and specified.

**52,123. LOYAL W. ALDEN,** Fosterville, N. Y. Plow-Clevises. Jan. 23, 1866.

This invention consists of a spring-clevis made in two sections, connected at their front by an equalizing bar, to which the team is hitched, and lugs or arms, through which, and through a plate on the beam, a pin may pass to raise or lower the line of draught, and pivoted at their rear to the beam to admit of thus raising or lowering it at pleasure.

Claim. In combination with the sectional plates and springs pivoted at their rear to the beam, and made adjustable thereto at their front ends, the equalizing bar connected thereto, substantially in the manner and for the purpose described.

**57,436. GEORGE P. DARROW,** Cincinnati, Ohio, assignor to himself and Joseph Hargrave. Plow-Clevises. Aug. 21, 1866.

The socket is slotted, permitting the clevis pin to drop into place when it is tightened by a partial revolution engaging its sections of threads with the threads in the socket.

Claim. Forming the clevis and bolt by casting the same with interrupted threads, in the manner and for the purpose set forth.

**65,357. WALDEN EDDY,** Greenwich, N. Y. Plow-Clevises. June 4, 1867.

Claim. 1. Forming the adjusting bolt B solidly upon and out of the forward end of the plow-beam, substantially as herein shown and described.

2. Securing the rear end of the draft bar F in the space between the bars  $\alpha^1$  and  $\alpha^2$  of the plow-beam A, by a bolt G passing through an eye or hook  $f^2$  formed upon the rear end of the said draft bar F, substantially as herein shown and described and for the purpose set forth.

**66,016. LEWIS GIBBS,** Canton, Ohio, assignor to Bucher, Gibbs & Co., same place. Plows. June 25, 1867.

The bar on the lower edge of the land-side is united to the share by a dovetail underneath. The clevis is cast in two portions, which clasp the beam by a dovetail socket and are secured by a bolt.

Claim. 1. Uniting the bar A to the share

B, at the point  $\alpha$ , underneath the share, as and for the purpose herein described.

2. A clevis made in two parts, with dovetailed recess cast therein so as to fit a dovetail or shoulder formed on the end of the beam and united thereto by a bolt or key, substantially as herein described and represented.

**68,200. HANFORD INGRAHAM**, Naples, N. Y. Plow-Clevises. Aug. 27, 1867.

The slotted reversible draft clevis is elongated sufficiently to allow the horse to walk clear of the furrow in side hill plowing.

Claim. The clevis as constructed substantially in the manner and for the purpose as herein set forth.

**68,545. HARRISON W. AUSTIN and WM. SHAW**, Kalamazoo, Mich. Plow-Clevises. Sep. 3, 1867.

The vertical bar of the clevis has a supplementary hook on its upper arm for the attachment of a whiffie-tree for a third horse.

Claim. The construction and arrangement of the vertical bar A, double tree D, single tree E E and F, as herein described for the purpose specified.

**70,351. JACOB NEWHART**, Terre Haute, Ind. Plow-Clevises. Oct. 29, 1867.

The long oscillating clevis with its attaching bolts regulates the inclination of the draft.

Claim. 1. The oscillating plow-clevis, Figs. 1 and 2, in the manner set forth.

2. The regulating bolt C, in connection with the looped T segment, Figs. 1 2 3 and 4, substantially as set forth and herein explained.

**78,542. ROGER SANDIFORD**, Joliet, Ill. Plow-Clevises. June 2, 1868.

The double, segmental clevis has a row of holes in order that the reversible, transverse clevis may be regulated as to height by the bolt passing through the said double clevis. The device enables the depth of penetration to be varied, and also affords facilities for changing the lateral direction of the plow.

Claim. 1. The double, segmental clevis  $\alpha$ , when constructed, operating, and arranged as and for the purposes set forth.

2. The transverse, oscillating clevis  $\epsilon$ , when constructed and arranged as and for the purposes described.

3. The combination and arrangement of the segmental clevis  $\alpha$  and transverse, oscillating clevis  $\epsilon$ , when arranged, constructed, and operating as and for the purposes set forth.

**78,775. THOMAS P. WARREN**, Norfolk, Va., assignor to D. W. Warren. Clev-  
is-Iron. June 9, 1868.

A plate provided with holes is attached to a bent rod or bar, which forms the clevis, so that by placing the plate in a horizontal or a vertical position, and adjusting the attachment of the same, the plow may be made to cut a deep or a shallow furrow, or be made to make more or less land, at pleasure.

Claim. 1. The combination of the perfor-

ated plate D with the bent rod C, when the said parts are constructed to operate in the manner set forth.

2. In combination with a perforated draught plate D and a rod or link, C, for attaching it to the plow-beam, the screw nuts  $n n$ , by which the plate can be adjusted back and forth on the rods or link, so as to cause the plow to run more or less to land, in the manner described.

**78,868. CHARLES R. ELMER**, Bridge-  
ton, N. J. Single-Tree Braces. June 16,  
1868.

The single-tree is hooked to the chain at a point unequal in distance from the clevis to the width of the furrow, so as to enable the horse to walk in the furrow instead of on the landside.

Claim. The combination and arrangement of the chain C and brace E with the beam A and single-tree F, substantially upon the principle above described, and for the purpose set forth.

**81,731. JOHN BALL**, Canton, Ohio.  
Clevises for Plows. Sep. 1, 1868.

The clevis is made yielding, and so arranged with a spring as to prevent injury to the plow or team in case of an obstruction.

Claim. 1. The clevis C, constructed as described, in combination with the adjustable loops D D, for the purpose of raising or lowering the front end of the clevis, substantially as herein set forth.

2. The levers B B, pivoted to the sides of the plow-beam A, and their lower ends pivoted to the rear ends of the clevis C, in combination with the rod F and spring G, constructed as described, and operating substantially as and for the purposes herein set forth.

**87,421. E. G. MATTHEWS**, Newton, Mass. Plow-Clevises. Mar. 2, 1869.

Claim. 1. The combination of flanges  $b d$  with one or both of the side-pieces B of the clevis, substantially as and for the purposes set forth.

2. The combination with the front piece D of an eye or ring H, as and for the purposes stated.

3. The combination with the plow-beam A and front piece D of a side-draught rod K, substantially as and for the purposes set forth.

4. The combination with the joint-bolt G of a catch-spring m, substantially as shown and described.

**87,458. JOHN BALL**, Canton, Ohio.  
Plow-Clevises. Mar. 2, 1869.

Claim. A spring-link for plow-clevises, formed of one piece of metal, in the form substantially as shown, with a hook at one end and an eye at the other, substantially for the purposes specified.

**82,764. DAVID STEWART**, Corinna, Me. Clevises for Plows. Oct. 6, 1868.

Claim. In combination with the spiral

shaft D and link E, the slotted plate F, clamp bolt C, and nut on the stirrup G for adjusting the side draught, as herein set forth.

**88,619. LOUIS FLIEDNER,** Cleveland, Ohio. Elastic Links for Clevises. Apr. 6, 1869.

Claim. The spring D, as arranged in combination with the adjustable cross-bar E, yoke or frame C, and hook F, in the manner substantially as and for the purpose set forth.

**89,407. G. W. HOLTON,** Berlin, Ky. Clevises. Apr. 27, 1869.

Claim. Clevises, having the extended front-bar provided with the hitching-rings D, and braced, all substantially as specified.

**90,068. JOHN ADOLPH BILZ,** Pleasanton, Cal. Plow-Clevises. May 18, 1869.

Claim. 1. The vertical slotted bar E, secured to the ends of the two arms A and B of a clevis, substantially as and for the purpose described.

2. The sliding-bar F, moving up and down through slots in said arms A and B, and held at the point desired by means of a set-screw, g, substantially as and for the purpose described.

3. The shackle G, attached by a swivel-joint to the screw e, said screw being secured to the lower end of the sliding-bar F, and moving up and down in the vertical slot a, substantially as and for the purpose described.

**90,736. ELIAS EVANS,** Montgomery, Ala. Clevises. June 1, 1869.

Claim. The clevis herein described, consisting of the shank S and curved body A, having the holes a a, D, together with the bolts C C' and nuts e, when adapted to be employed in connection with a plow-beam having the gain b, substantially as and for the purposes set forth.

**92,409. GEORGE WATT,** Richmond, Va. Clevises. July 6, 1869.

Claim. 1. The block M, provided with vertical pivots O O, and a vertical series of perforations N N, substantially as described, for the purposes set forth.

2. In combination with the clevis L M, constructed substantially as described, the plates G G, bolts H H', and whiffletree-loop P, constructed and arranged to operate substantially as and for the purpose specified.

3. In combination with the clevis L M, constructed substantially as described, whiffletree-loop P, bolts H H', and coupling G G', the bolt I, and washers K, substantially as and for the purpose set forth.

**92,775. JAMES L. BALDWIN,** Troy, Pa. Plow Clevises. July 20, 1869.

Claim. The combination of a rubber block, B, or equivalent, with the mortised forward part of the plow-beam, to sustain the draught of the clevis-pin or bolt, substantially as here-

in shown and described, and for the purpose set forth.

**92,806. PHILIP FALKER,** Lanesville, Ind. Plows. July 20, 1869.

Claim. 1. The arrangement of the clevis E, bar D, and box F, which is regulated to slide freely over the clevis, and is controlled by the screw G, as specified.

2. In combination with the box F, clevis E, and bar D, the bar C, when connected to a loop, which passes from the under side of the beam over the top thereof, and passes back down through the beam and connected to the upright, as shown and described.

**92,953. SAMUEL H. FREDERICK,** Matteson, Mich. Clevises. July 27, 1869.

Claim. The hook marked 1, slotted at one end, to receive the hook 2 and hook 3, slotted at the rear end, to receive the upper end of hook 2, in combination with hook 2, all constructed and arranged as described and shown.

**93,396. WILLIAM W. ATTEBERRY,** Chesterfield, Ill. Clevises. Aug. 10, 1869.

Claim. An improved plow-clevis, formed by the combination of the main clevis A, adjusting-gauge D, double tree clevis G, having a hook, K, formed upon the forward end of its upper arm, and connecting-clevis H, with each other, said parts being constructed and arranged substantially as herein shown and described, and for the purpose set forth.

**84,296. THOMAS DOW,** Yorktown, Ill. Plow Clevises. Aug. 31, 1869.

Claim. The concave plate A, provided with holes X, and lugs C and D, in combination with the two-part roller G G, clevis J J, provided with shank L P flange N, and spring-bolt T, constructed and arranged to operate as and for the purpose set forth.

**94,348. ZACHARIAH B. SIMS,** Bonham, Texas. Clevises. Aug. 31, 1869.

Claim. The clevis D, and screw eye-bolt B, combined to operate together as described.

**87,680. MARTIN PRILLAMAN,** Tipton, Ind., assignor to himself and Elizabeth Ressler, same place. Draught-Regulators for Plows. Dec. 7, 1869.

Claim. Plate a, plates b and c, screw e, and lever-bar f, in combination with the half-circle u, plate o, lever i, catch k, spring m, and draught-rod p, substantially as herein set forth, and for the purposes specified.

**97,990. JEREMIAH H. TARPLEY,** Greensborough, N. C. Clevises for Plows. Dec. 14, 1869.

Claim. 1. The curved plate D, when provided with a socket B, and with one or more notched ribs E on its face, substantially as and for the purposes set forth.

2. In combination with the plate, socket, and ribs, above claimed, the clevis-strap F, substantially as described.

**102,652. THOMAS E. C. BRINLY,** Louisville, Ky. Plow Clevises May 3, 1870.

Claim. 1. The construction of the clevis B, substantially in the manner shown and described.

2. The combination of the within described clevis B with the slot in the end of the plow-beam, substantially as and for the purpose specified.

**107,692. GEORGE W. KIDWELL,** Elwood, Ind. Attaching Drafts to Plows. Sep. 20, 1870.

Claim. The slotted and end-perforated beam A, bolt D, and rubber B, combined with a clevis, C, having the inwardly projecting pins F F, as and for the purpose specified.

**109,215. CORNEALIUS L. JACKSON,** Millersburg, Ill. Adjustable Draft Device for Plows. Nov. 15, 1870.

Claim. The combination of a clevis-bar C, draft device D, lever E, roll H, and connecting bar, substantially as and for the purpose specified.

**110,080. HENRY C. SIEVERLING,** Carrollton, Ill. Plow-Clevis Attachments. Dec. 13, 1870.

Claim. An attachment for plow-clevises, composed of rigidly-attached perforated bars B B<sup>2</sup>, braces C C<sup>2</sup>, and ferrule C<sup>2</sup>, with pin and link D D<sup>2</sup>, secured to the plow-beam, and applicable to an ordinary clevis, A', all constructed, arranged, and operating substantially as herein described.

**112,715. HENRY F. JERAULD,** Vandalia, Ill., assignor to Jerauld & Stolle, same place. Draft-Equalizers for Three Horses. Mar. 14, 1871.

Claim. 1. The strap C, bar F, strap G, pins E and J, and double and single-trees I and L, all combined and arranged substantially as set forth,

2. In combination with the elements C F, G, E, J, I, and L, the sleeve K, as described.

**114,212. JOSHUA B. SMALL and FRANKLIN F. HOLBROOK,** Boston, and **ELBRIDGE G. MATTHEWS,** Oakham, Mass. Swivel Clevises for Plows. Apr. 25, 1871.

Claim. 1. The combination with the arm G and face-plate B, of the hook L, substantially as and for the purposes set forth.

2. The combination with the beam A, face-plate B, and disk F, of a spring-catch device, for the purposes stated.

3. The combination, with each face-plate B, disk F, and arm G, of the swivel-loop K and catch-bolt O, substantially as and for the purposes set forth.

**115,113. JOHN H. SHAW,** Inlet, Ill. Clevises. May 23, 1871.

Claim. The combination of the parts C, P,

A, and S, all arranged as and for the purpose described.

**117,187. ANDREW McCOLLAM,** New Orleans, La. Plow Clevises. July 18, 1871.

Claim. The clevis A, provided with the adjusting-rings m m, substantially as and for the purposes specified.

**118,050. SAMUEL W. POPE,** Louisville, Ky. Clevises. Aug. 15, 1871.

Claim. The clevis-rod C, bent substantially as described, in combination with the side plates B, or their equivalents, as set forth.

**119,502. JERRY BRISON,** Competine, Iowa. Plow Clevises. Oct. 3, 1871.

Claim. The combination of the diagonal braces B<sup>1</sup> B<sup>2</sup>, of the plate B, and the adjustable and extensible brace-rod, substantially as and for the purpose described.

**122,853. MARTIN PRILLAMAN,** Tipton, Ind. Draft-Regulators for Plows. Jan. 16, 1872. Antedated Jan. 8, 1872.

Claim. The combination, in a plow, of plates X and Z having slots i and d, and holes R<sup>1</sup> and N, index Y, lever E, screws U U, nuts V V and J J, handle A, and beam B, all constructed to operate as described.

**122,956. RICHARD J. MILLER,** Sherman, Iowa. Plows. Jan. 23, 1872.

Claim. The combination of pivoted clevis-arm A B C, ears D D, and eccentric pulley E, when these parts are constructed and applied to the beam, in connection with operative mechanism at the rear of the plow, as and for the purpose set forth.

**124,143. JESSE B. LATIMER,** Stewart county, Ga. Plows. Feb. 27, 1872.

Claim. 1. The combination of the plow-point C', constructed with two similar planes and an intermediate plane connecting the two, inclined upwardly a little with the standard C, both constructed and arranged substantially as described and shown.

2. The clevis-plates D D, provided with projections f, f', and f'', constructed, arranged, and operated substantially as shown, and for the purposes set forth.

**124,313. WILLIAM AXFORD,** Carrollton, Ill. Plow-Clevises. Mar. 5, 1872.

Claim. The clevis herein described, constructed with main bars, as shown, pins A B C, link F, and rod D, substantially as and for the purpose specified.

**124,339. ALBERT A. DAILEY,** Wilson, N. Y. Plow-Clevises. Mar. 5, 1872.

Claim. 1. The washers D E, provided with tongues and grooves b b on their sides and d on their adjoining surfaces, and with central holes—that in the washer D being round, and in E square—all substantially as and for the purposes herein set forth.

2. The combination of the frame C with

tongues *a a*, washers *D E* with tongues and grooves *b d*, and the plate *G* with rod *H* and nut *I*, all constructed and arranged substantially as and for the purposes herein set forth.

**3.** The combination of the perforated plate *G*, post *K*, and pivoted perforated hasp *J*, substantially as and for the purposes herein set forth.

**126,934. SYLVESTER H. DAILEY,** Olcott, N. Y. Draft Attachments to Plows. May 21, 1872.

Claim. The pin *B*, strap *C D*, and springs *g*, all combined with each other, and arranged substantially as herein shown and described.

**128,087. EDGAR ALFRED WRIGHT,** Fort Madison, Iowa. Plow-Clevises. June 18, 1872.

Claim. The improved clevis herein described, constructed with the main clevis *A* having flange *B*, and the auxiliary clevis *C*, having flanges *D*, substantially as and for the purpose specified.

**129,355. HENDERSON MCKINNEY,** Earlham, Iowa. Plow Clevis-Pins. July 16, 1872.

The clevis-pin has its upper end prolonged into a spring, with a hook or hooks upon the end for supporting the weight of the double-tree.

Claim. The combination of the clevis-pin *B*, spring *C*, and hooks *a a*, substantially as and for the purposes herein set forth.

**129,614. EDWARD STEWART,** Fort Madison, Iowa. Plow-Clevises. July 16, 1872.

A clevis made with jaws so as to hold the evener or double-tree in a horizontal position, and in the notched pin by means of which the clevis is adjusted to any desired height.

Claim. **1.** The clevis, consisting of the arms *A A*, cross-bar *C*, and horizontal jaws *D D*, all made in one piece, for holding the double-tree in a horizontal position while turning, substantially as herein set forth.

**2.** The combination of the clevis *A C D*, with V-shaped ridge *b*, and the pin *G*, with projections *e e*, substantially as and for the purposes herein set forth.

**130,145. JAMES NAPIER,** Martin's Ferry, Ohio. Plow-Clevises. Aug. 6, 1872.

When it is required to change the lever to the other side of the plow the rod is pulled back, when the lever drops down; the draft of the horse raises it to its place on the other side; then the rod is pushed forward.

Claim. The revolving lever *C*, with the iron pin *g*, the iron chain *E* connecting it with beam of plow, the swivel clevis *D* for attaching the single-tree, and the iron rods *R R* for its support, as and for the purposes hereinbefore set forth.

**130,717. JOHN T. HOVIS,** Clintonville, Pa. Plows. Aug. 20, 1872.

The plate with which the ring that the team is attached is connected at the front end of the plow-beam, and can be fastened at any desired point.

Claim. The combination of the plate *c*, link *e*, triangular frame *f*, connecting-bar *g*, lever *h*, with a plow-beam and clevis, all arranged and operating as described.

**132,724. EMANUEL R. KAGARICE,** New Enterprise, Pa. Clevises. Nov. 5, 1872.

The clevis is adjustable to either side in the slotted beam and carries an adjustable eye-screw, which regulates the draft-rod. The draft is attached to the plow through the medium of a spring.

Claim. **1.** The combination of the slotted plow-beam *A*, pivoted adjustable clevis *B*, eye-screw *C*, and draft-rod *D*, all constructed and arranged substantially as and for the purposes herein set forth.

**2.** The combination, with the plow-beam *A*, of the draft-rod *D*, lever *E*, adjustable rod *d*, stirrup *G*, standard *H*, and spring *I*, eye-bolt *C*, and clevis *B*, all constructed and arranged substantially as and for the purposes herein set forth.

**133,799. FRANCIS REESE,** Wilsonville, Ala. Plow-Clevises. Dec. 10, 1872. Antedated Dec. 7, 1882.

A clevis made in two parts, one adjustable laterally upon the end of the beam, and the other pivoted between two jaws and adjustable vertically in the usual manner.

Claim. The adjustable clevis *A* pivoted between the jaws of the latterly-adjustable block *B*, substantially as described.

**133,802. AUGUSTUS SANBORN,** St. Johnsbury, Vt. Plows. Dec. 10, 1872.

A reversible plow having a swinging draft-rod, held to either side by a gravitating latch, which operates automatically on turning the plow.

Claim. In combination with a plow and swinging draft-rod, a gravitating-latch operating automatically as described, to release the draft-rod, prior to swinging and retain it after swinging.

**134,377. CONRAD HARTZELL,** St. Joseph, Mo. Plows. Dec. 31, 1872. Antedated Dec. 24, 1872.

A reversible cutting-blade and colter, formed of one piece of metal, is attached to the land-side of the plow, and in the arrangement of the devices for operating the clevis.

Claim. **1.** The triangular, elongated, vertical, and horizontal cutting-blades, or colter *A* and share *A'* attached to the land-side of a plow, for the purpose described.

**2.** The regulating-screw *I*, the perforated plate *M*, swivel *O*, and back-band *K*, connecting the shanks *f* by the pins *i i*, in combination, substantially as and for the purpose specified.

**137,078. AUGUST KAUFMAN**, Davisville, Cal. Plow-Clevises. Mar. 26, 1873.

The direction of drafts can be shifted without stopping the team.

Claim. The clevis *r*, with its lever-handle *s*, in combination with the rack *m*, substantially as and for the purpose described.

**138,895. WILLIAM B. JACKSON, J. MORRIS CHILDS and ORLANDO J. CHILDS**, Utica, N. Y. Plows. May 13, 1873. Filed Mar. 21, 1873.

Claim. A draft-clevis provided with a series of holes, and a tongue projecting inward from its head, for the lateral adjustment of a draft-hook, in combination with a clevis provided with a series of ratchet teeth to engage said tongue, for the vertical adjustment of said draft-clevis, substantially as described.

**139,381. ROBERT GIBBS**, Spring Hill, Mo. Clevis-Bars and Hooks. May 27, 1873. Filed Feb. 19, 1873.

Claim. 1. A clevis-bar having front piece *B'* with the hook *b*, combined on a plow-beam with the yoke-nut *C* and screw-rod *D*, as and for the purpose described.

2. A staple, *F*, having the shank *f* with two reversed hooks at the end and a single pin *f'*, combined, as and for the purpose set forth.

3. A hook having the shank *f* swiveled in front piece *B'* of clevis-bar, and combined rigidly with a laterally-adjustable plate, *G*, as and for the purpose specified.

**139,564. JOHN FLANAGIN**, Pawnee City, Neb. Plow-Trucks. June 3, 1873. Filed Mar. 1, 1873.

A triangular frame mounted on wheels, to which plows of different kinds may be conveniently attached.

Claim. The triangular plow-truck *A B B* placed upon wheels, having one or more sets of perforations at each end of bar *A*, and the clevis-bar at the junction of bars *B B*, as and for the purpose described.

**139,752. AUGUSTUS ADAMS**, Sandwich, Ill. Draft-Hooks for Cultivators. June 10, 1873. Filed Jan. 4, 1873.

The hook is cast with a ring to fit upon the end of the double-tree, with one or more hooks above and below.

Claim. A draft-hook for cultivators adapted for attachment directly to the end of the evener or double-tree, and cast with a number of draft-hooks, one or more above and one or more below the evener, substantially as described, for the purposes specified.

**140,632. DAVID H. KING, and WILLIAM M. HULSE**, Palmyra, Ill. Equalizing Attachments for Plows. July 8, 1873. Filed Mar. 29, 1873.

Claim. 1. The loop *B*, closed at both ends and secured to the beam by the bolt *C* and clevis *D*, to hold the equalizing mechanism, in the manner described.

2. The combination with the chains attached to a band, *F*, movable on an eccentric, *E*, of the guide-bar *H*, applied as and for the purpose set forth.

**140,715. WILLIAM LAHMAN**, Wellsville, Ohio. Plow-Clevises. July 8, 1873. Filed Apr. 3, 1873.

A spring-pin secures the clevis to the plow-beam.

Claim. The U-shaped clevis-bar *A*, forming prongs *a a* having holes for the passage of the clevis-pin, and the lower prong provided with a countersunk recess *b*, in combination with a headed pin *B* provided with a spring, *C*, having a square shoulder and extended below the bottom of the lower clevis-prong, all as shown and described.

**141,375. CHARLES O. NASON**, Malone, Ill., assignor to Deere & Co., same place. Plows. July 29, 1873. Filed June 21, 1873.

Plates with a recess or socket and set-screw, for the double purpose of a clevis and an adjustable holder for the arms of the plow-wheel.

Claim. 1. The clevis-jaw plates *B B*, when constructed with sockets or recesses *D*, for the purpose specified.

2. The combination of the plates *B B*, having sockets *D*, with the gage-wheel bands *F*, beam *A*, and thumb-screw or nut *C*, for the purpose specified.

**148,345. JAMES H. ARNOLD**, Louisville, Ky. Clevises. Mar. 10, 1874. Filed Aug. 19, 1873.

The clevis, in addition to the ordinary notches, has extension-hooks outside the clevis-bars and above and below the beam. The chain is secured in the hooks by drop-links.

Claim. The draft-hooks *C C*, with their drop-links *D D*, as above described, in combination with the clevis *A* and pin *B*, when arranged, constructed, and operated substantially as and for the purpose set forth.

**157,976. GILLUM SHELTON**, Normal, Ill. Clevises. Dec. 22, 1874. Filed Aug. 10, 1874.

A socket for the beam, having lateral segment-plates in front, and extending back to the pin. The clevis proper has vertical segments.

Claim. The herein-described attachment to the beams of plows, consisting of the combination of socket *B'*, segmental plates *b'*, and bolt *C* with the oscillating clevis *D* and bolt *E*, substantially as and for the purpose set forth.

**158,140. LEANDER ELLSWORTH SMITH**, Dixon, Ill., assignor to T. Cumins, H. T. Noble, and O. B. Dodge, same place. Clevises. Dec. 22, 1874. Filed Oct. 31, 1874.

A projecting arm is cast upon the rear end

of the clevis-bar, connected by a hook to relieve the beam of the draft-strain.

Claim. The combination, with clevis C  $c^2$ , of a double-hook, D, and clevis-bar B, having perforated flange E, as shown and described, for the purpose specified.

**159,549. ETHEL O. HARVEY,** Lubec, Me. Clevises. Feb. 9, 1875. Filed Jan. 18, 1875.

The front end of the plow-beam has a series of deep vertical notches, into which fits a notched oval bar or bolt pivoted in the clevis. The bolt-hole is extended to the rear in a narrower slot, and grooves cut in the bolt allow, when properly turned, the clevis to slide forward, releasing the pivoted bar, and allowing both adjustments to be made. The draft is secured by pushing back the clevis and turning the bolt.

Claim. The clevis D, provided with the hole E, slot  $a$ , and pivoted oval notched bolt G, in combination with the bolt F, provided with the slots  $x\ x$ , constructed and arranged to operate in combination with the beam A, provided with the apertures  $d\ d$ , substantially as and for the purpose specified.

**159,662. CHAS. H. FOSS,** Onarga, Ill. Clevises. Feb. 9, 1875. Filed Jan. 16, 1875.

The clevis-bolt has eccentric bearings in the clevis-iron. It is provided with a handle to turn the bolt which slides the clevis forward, releasing it from the toothed-plates, or backward, securing it rigidly at any vertical adjustment. A notched pivoted drop-plate retains the draft-link at any lateral adjustment.

Claim. 1. The combination of clevis-iron E, lugs D, notched-jaws C, and cam-bolt F, all substantially as set forth.

2. In combination with the clevis-iron E, the drop-plate K, substantially as and for the purpose set forth.

**160,355. L. J. SEELY,** Waldron, Ind. Draft-Equalizers. Mar. 2, 1875. Filed Jan. 25, 1875.

Device for throwing the line of draft to one side of the beam for three horses.

Claim. The improved draft-equalizer for plows, &c., composed of a slotted and rigidly supported and braced clevis, B, at the front end and land-side of the plow-beam, with adjustable draft-eye C, in combination with the strengthening draft and stay-rods  $e\ e\ h$ , clevised to laterally-braced cross-bar D and bolted to front and rear ends of beam, substantially as specified.

**165,253. CHARLES N. POUND-STONE,** Grand Ridge, Ill. Safety-Clevises. July 6, 1875. Filed May 8, 1875.

Each rear arm of the clevis is made whole, but becomes a half-section at the center or front, where the two arms are pivoted together. From the pivot each half tapers around the curve, and runs out a little short of the other

rear end. The bolt-hole is near the rear of the evener, allowing the clevis to be uncoupled when swung around.

Claim. The clevis formed of the two hook-shaped parts A B, pivoted to each other at their bends, and the pin C, swiveled to the long arm of one of the parts A B, and working loosely in the long arm of the other part, substantially as herein shown and described.

**166,935. F. C. MERRILL,** South Paris, Me. Side-Hill-Plow-Clevises. Aug. 24, 1875. Filed May 31, 1875.

A stud upon the clevis travels in crescent-shaped recess in the front end of the beam, while a longitudinal slot for the clevis-bolt allows it to move forward and back, and automatically change the draft from side to side.

Claim. 1. In combination with the clevis  $a$ , having the bolt  $c$  and stud  $h$ , and the beam  $b$ , having the slot  $d$ , the plate  $e$ , having the curved slot  $f$ , the said slots being arranged and constructed as shown and described.

2. In combination with the clevis, made as described, and having the bolt and stud, the slotted plate  $e$ , having the opening  $i$ , as and for the purposes set forth.

**170,256. B. B. HAWES,** Morrisville, Vt. Furrow-Gages for Plows. Nov. 23, 1875. Filed Sep. 30, 1875.

Devices for vibrating the draft of a side-hill plow from side to side, and for holding and releasing it from the handles.

Claim. 1. The combination, with the V-shaped plate C, having lugs  $a$ , slotted arm  $b$ , and box E, of the vertically-movable plate D and operating-lever B, substantially as specified.

2. In combination with a horizontally-vibrating draft-rod, F, the vertically-movable plate D, and slotted box E, substantially as specified.

3. The V-shaped plate C, having slots  $s$ , lugs  $a$ , slotted arm  $b$ , and the rectangular box E, open in front and rear, and slotted at top and bottom, substantially as specified.

**170,758. JOHN G. MILLER,** Fredericksburg, Va. Clevises. Dec. 7, 1875. Filed Oct. 29, 1875.

Devices for changing the lateral draft of a side-hill plow, operated from the handles.

Claim. The combination of the adjustable notched clevis E, the adjustable double-tree clevis F, and the rod H with each other, and with the beam and handles of a plow, substantially as herein shown and described.

**171,197. JOHN D. TRACY and JAMES F. PLATT,** Sterling, Ill. Hooks for Harrows. Dec. 14, 1875. Filed Nov. 6, 1875.

A base-plate is secured to the harrow beam by bolts. A draft-hook rises from the forward end of the plate, and a catch pivoted to the plate, having a guard to form an eye for the draft-link.

Claim. The pivoted latch, B, having on

its under side a lug,  $\theta$ , in combination with the hook C, formed on the perforated plate A, and adapted to be applied to a beam, O, substantially as described, and for the purpose set forth.

**172,180. JOHN SCHOFIELD,** Moline, Ill. Clevises. Jan. 11, 1876. Filed Nov. 6, 1875.

A graduated link that may be changed to and secured in any notch of the clevise.

Claim. The oblong link E, having graduated annular flanges  $g'$  and a narrowed portion g, in combination with a notched clevise and plow beam, substantially as specified.

**175,572. T. N. MACHIN,** Wayland, Mass. Elastic-Clevises. Apr. 4, 1876. Filed Jan. 31, 1876.

Claim. The hollow head B, provided with the yoke A  $\beta$ , in combination with the inclosed spring d, sliding hook C, and plate e, operating substantially as described, and for the purpose set forth.

**176,212. THOMAS B. BALDWIN,** Troy, Pa. Whiffletree-Attachments for Plows. Apr. 18, 1876. Filed Mar. 25, 1876.

An evener with a gage attached to its under side at or near its center.

Claim. The combination of gage-wheel D with the evener A, substantially as specified.

**179,285. J. M. EATON,** Doylestown, Ohio, administratrix of L. C. Eaton, deceased. Spring Clevises. June 27, 1876. Filed May 6, 1876.

A bolt passes through the slotted clevise and the double-tree. A rubber cylinder attached to the end of the clevise presses against a concave part of the front edge of the double-tree.

Claim. A double-tree, A, a clevise, B, slotted at  $\beta$   $\beta$ , in combination with a spring, C, substantially as described.

**179,485. JOSEPH B. MORRISON,** Fort Madison, Iowa. Draft-Equalizers. July 4, 1876. Filed May 20, 1876.

Two curved upright arms are connected by perforated cross-pieces, to which the draft-hook is attached.

Claim. A three-horse draft-equalizer, consisting essentially of upright bars, adapted to be pivoted to the front end of a plow-beam, the said bars being connected by perforated cross-bars, whereby the land and depth of the plow may be regulated as desired, all constructed substantially as and for purpose set forth.

**180,726. JOEL NOURSE,** Boston, and JAS. A. HOWE, Ayer, Mass. Furrow-Gages for Plows. Aug. 8, 1876. Filed Nov. 2, 1875.

The plowman swings the draft-rod from side to side by depressing the handles, thereby raising the beam, giving it at the same time a lateral movement.

Claim. 1. The combination of the draft-rod D, swinging automatically from side to side, the swinging or oscillating connection from the draft-rod to the plow-beam, and the stop-rest on the plow-beam, whereby the draft-rod shall be held in position on either side by the downward strain alone of the beam upon the draft-rod, resulting from the draft of the plow, but being left free to reverse whenever the draft is removed, substantially as described.

2. The combination of the swinging draft-rod D, with the vertically-swinging plate C, through which the draft-rod passes, and the laterally-extended plate on the plow-beam, against which the draft-rod rests while the plow is in operation, substantially as described.

3. The combination of the head-piece A, pivot-bolt e, rocking-plate C, provided with two or more holes, h, and the draft-rod D, substantially as described, and for the purpose set forth.

4. The rocking-plate C, provided with various recesses h, for adjusting the amount of side motion given to the draft-rod D, substantially as described.

**181,180. ABRAHAM B. KING,** Camden, Ohio, assignor to Catharine King, Rome, Ga. Drafts for Plows. Aug. 15, 1876. Filed May 27, 1876.

Claim. 1. The U-shaped hanger D, passed upon the beam from below, and having its ends extended upward at each side of the beam, in combination with the beam, a U-shaped clamp, a, inclosing the said arms, the purchase-plate b, applied upon the clamp, and nuts c, substantially as specified.

2. The horizontally-vibrating, slotted, angular clevise-plate E, carrying the adjustable depending eye-bolt g, and having the fixing-point z at its rear end, in combination with a clamp-bolt, d, beam A, and draft-rod G, passing at its front end through the said eye-bolt, and secured at its rear end to the arm D, substantially as specified.

**181,313. JOHN F. CHASE,** East Haddam, Conn. Spring-Clevises. Aug. 22, 1876. Filed Aug. 17, 1876.

Claim. The hollow slotted tube A, having the fixed collar C at one end, and the sliding collar G and link B at the other, in combination with the hook D, having stem E, the key b, and spring I, all constructed and operating substantially as shown and described.

**182,665. B. B. HAWSE,** Morrisville, Vt. Furrow-Gages for Plows. Sep. 26, 1876. Filed July 15, 1876.

The draw-rod is supported under the forward end of the beam by a horizontal loop. A shaft passes vertically through the beam, and a crank pin passes through a slot in the rod, by which means a horizontal adjustment of the draft is made.

Claim. 1. In a furrow-gage for plows, the combination of a vertical crank-shaft, having

a horizontal arm, with a laterally vibrating draft-bar and suitable shifting mechanism, substantially as and for the purpose set forth.

2. The combination of shifting-rod E, having rack F, with wheel G, crank H I, pin I, and slotted draft-bar J, substantially as and for the purpose set forth.

**183,551. WILLIAM H. EDWARDS,** Moline, Ill. Clevises. Oct. 24, 1876. Filed July 24, 1876.

Claim. A clevis consisting of the side-plates A, provided with the arms C, having the series of holes *a* formed therein, and the cross-bar I, provided with the series of holes *c*, said plates and cross-bar being connected by the pins or studs *l* cast thereon, as shown and described.

**188,413. C. ROBINSON,** Eau Claire, Wis. Clevises for Plows. Mar. 13, 1877. Filed Jan. 22, 1877.

The vertical bar extending between the horizontal portions of the clevis, in rear of its notched end, is provided with a spur, the lower part of which terminates in a horizontal shoulder, upon which the locking-plate rests when any one of its notches engages with said spur at any lateral adjustment. The ring has a horizontally-flattened portion, and to be moved must first be placed in a position which it could not otherwise assume.

Claim. 1. In combination with the clevis B, provided with the spur *b'* and shoulder *b''*, the locking-plate C, having a toothed front edge, pivoted upon the bar A, and capable of vertical motion, so as to enable its notches *c* to engage or be released from engagement with said spur, substantially as and for the purpose specified.

2. In combination with the clevis B, provided at its front end with a vertical space, *b'''*, which has at its front side notches *b*, the link E arranged to loosely fill one of said notches, and provided with a horizontally-flattened portion, *e*, that is capable of passing through said space *b'''*, substantially as and for the purpose shown.

**189,021. J. C. COONLEY and A. O. BUCKIUS,** Chicago, Ill. Clevises. Apr. 3, 1877. Filed May 27, 1876.

The brace-bar is attached to the clevis-plate and draft-bar by detachable locking-connections.

Claim. 1. The combination, substantially as set forth, of the clevis-plate B, draft-bar D, and brace-bar H, attached to the plate and draft-bar by detachable locking-connections, constructed and operating as specified.

2. The combination of the draft-bar D and brace-bar H, attached thereto by a detachable locking-connection, constructed and operating as described.

**190,070. J. A. OLSON,** Vasa, Minn. Plows. Apr. 24, 1877. Filed Mar. 6, 1877. The land side handle is pivoted to the plow-

beam, and extended forward to engage with the arm of the clevis. This handle is vibrated vertically, and locked by a spring-pawl and ratchet, causing the clevis-plate to be raised or lowered. Devices for the lateral adjustment of the draft.

Claim. 1. The herein described device for regulating the set of a plow, consisting essentially in the combination of the plow-beam A, having a segmental ratchet *a*, with the engaging or coupling lever-arms G E, operating-handle F, and spring-catch *f*, substantially as and for the purpose shown and specified.

2. The combination of the plow-beam A, having bolt *c*, arm G, having clevis G', swinging-bracket H, and bolt I, substantially as and for the purpose herein shown and specified.

3. The adjustable clevis-plate herein described, consisting of an upper plate, *n*, having pin or screw *o*, a correspondingly-shaped lower plate *o*, having perforation *r*, pin L, having step or shoulder *u*, and bolt or screw *s*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

4. The combination of plow-beam A, swinging and adjustable arm E, having handle F, pivoted arm G, having clevis G', bracket H, bolt I, parallelogram K, and clevis-plate *n o*, all constructed and combined to operate substantially in the manner and for the purpose herein set forth.

**190,653. WM. S. WEIR,** Monmouth, Ill. Clevises. May 8, 1877. Filed Jan. 13, 1877.

Shoulders or lugs are formed upon the horizontal plate of the clevis, which prevent it from dropping below a level, and hold the evener in a working position.

Claim. 1. A clevis, pivoted to beam-plates B, and provided with lugs *c'*, or their equivalents, which impinge against the forward faces of said plates B, and hold the clevis from dropping below a horizontal, or nearly horizontal, position, substantially as described, and for the purpose specified.

2. A clevis, C, having a broad flattened forward end and rear ends, having lugs *c'*, arranged to operate with double-tree D IV' and plates B, substantially as described, and for the purpose specified.

**191,629. C. O. WILDER,** Monmouth, Ill. Plow-Clevises. June 5, 1877. Filed Apr. 7, 1877.

Device to prevent the clevis falling below a horizontal position.

Claim. 1. The beam-plates B, having laterally-projecting pins or studs D, arranged to operate in combination with a clevis, E, pivoted to the beam-plates, and provided with lugs or projections *e''*, which come in contact with the studs D, substantially as and for the purpose specified.

2. The beam-plates B, having a series of bolt-holes, C, and series of projecting studs or

pins, D, arranged to operate in combination with an adjustable clevis, E, having rear lugs or projections e'', substantially as and for the purpose specified.

**192,608. WM. S. WEIR,** Mommoth, Ill. Plow-Clevises. July 3, 1877. Filed Apr. 7, 1877.

The clevis cannot drop below a horizontal position, but has a limited vibration upward.

Claim. A clevis, C, having limbs E, each limb E pierced with a circular hole, e, and a segmental slot, e', arranged to operate with beam-plates A, having two series of holes b b', and with journal-bolt F and check-bolt G, substantially as described, and for the purposes specified.

**194,276. J. A. VANN,** Belvidere, N. C. Reversible Plow-Hooks. Aug. 14, 1877. Filed June 25, 1877.

Clevis with hook above and below the beam, and reversible.

Claim. The reversible draft-hook for plows, consisting of the bottom hook A, having the screw-shank B and stops a<sup>1</sup> a<sup>2</sup>, and the top hook C, having the stops c<sup>1</sup> c<sup>2</sup>, and a screw-opening, substantially as herein shown and described.

**198,275. JOHN F. CHASE,** Deep River, Conn. Spring Plow-Clevises. Dec. 18, 1877. Filed Oct. 13, 1877.

Two stems having loops formed on their outer and disks on their inner ends are placed within a casting composed of two semi-cylindrical parts, the ends of which are contracted to form interior shoulders, and springs of different degrees of strength are placed around said stems, between said shoulders and disks.

Claim. 1. In a spring-clevis, the combination of the two stems A A', with eyes or loops B B', and disks C C', and the springs D D', of different thicknesses and strength, all constructed and arranged within an exterior casing, substantially as and for the purposes herein set forth.

2. In a spring-clevis, the exterior casing made of two semi-tubular or semi-cylindrical parts, G G, having contracted ends to form interior shoulders a a, and provided with outwardly-projecting flanges b b, the two parts being connected together by means of collars d d, placed around said flanges, substantially as herein set forth.

**199,073. WILLIAM KINNEY,** Bellevue, Ohio. Clevises. Jan. 8, 1878. Filed Oct. 27, 1877.

The body of the clevis is of the usual form and construction. The hole in each end is provided with a slot, and a corresponding stud is formed on the lower end of the pin, and the under side of the lower arm of the clevis is recessed, so that the pin can turn half-way round. When in this position a button pivoted to the side of the head is turned down, which keeps the pin from turning back.

Claim. An improved clevis, in which the

bow A has grooves a<sup>1</sup> formed in the inner side of its pin-holes, and a shoulder a<sup>2</sup>, formed upon the outer side of its lower end, and in which the pin B has a lug b<sup>1</sup>, upon the side of its lower end, and a latch, b<sup>2</sup>, pivoted to, and a shoulder, b<sup>3</sup>, formed upon its head, substantially as herein shown and described.

**199,636. HORATIO GAIL,** Albion, Mich. Plow-Wheel Attachments. Jan. 29, 1878. Filed July 17, 1877.

Claim. The combination, with the clevis A, having ears b and a vertical bolt, of the hook C, provided with ears a, for attachment to clevis, and having recessed side d and hole h', the slotted wheel-standard D, and square-headed bolt h, all constructed and arranged substantially as described and shown.

**200,730. DONALD A. KENNEDY,** Eau Claire, Wis. Plow-Clevises. Feb. 26, 1878. Filed Jan. 25, 1878.

The arms of the horizontal clevis are rigid with a socket which slides upon the plow-beam, and is held by set-screws, which also pivot the vertical clevis. Through the latter is passed a bolt with eccentric bearings, which holds the draft-link in a notch, or, by turning, allows the draft to be vertically adjusted. The bolt also passes through the horizontal clevis, and adjusts the draft to or from land.

Claim. An improved plow-clevis formed by the combination of the sleeve B, the horizontal clevis C, the vertical clevis E, and the eccentric bolt or pin D with each other, substantially as herein shown and described.

**200,919. DANIEL M. JOHNSON,** Emerson, Iowa. Plow-Regulators. Mar. 5, 1878. Filed July 30, 1877.

Claim. The combination of the clip G, the perforated bar H, the socket I, the pin, lever, and spring J, the perforated bar K, and the pin and socket L with the end of the lever C, for holding the said lever in place, substantially as herein shown and described.

**201,120. HENRY T. NOBLE,** Dixon, Ill. Plow-Clevises. Mar. 12, 1878. Filed Nov. 26, 1877.

Clevis held level by rearward hooks and two bolts, and having limited vibration upward. Two series of laterally-adjusting holes and a hammer-strap held by hooks, and adapted to be changed from one series to the other.

Claim. 1. The clevis C, provided with the curved projections b and hooks d, in combination with the beam-plates B B', having a single row of vertical holes, a, and the pins D E, adjustable in such single row of holes, substantially as described.

2. The clevis C, having the circular series of holes g and h, in combination with the hooked studs F F' and the interchangeable strap G, substantially as and for the purpose specified.

**201,837. CLARK ROBINSON,** Eau Claire, Wis.; assignor to Smith & French, same place. Plow-Clevises. Mar. 26, 1878. Filed Aug. 2, 1877.

Two T-shaped plates having each a lug and pintle are fitted between the rear end of the vertical clevis, said lugs serving to separate the plates sufficiently to admit of their passage over the end of a plow-beam. A bolt passing through the vertical centers of the plates binds them together, and its projecting ends serve as a pivotal bearing, for the horizontal clevis, the rear ends of which are pivoted thereon.

Claim. As a means for combining the clevises A and B with each other and with a plow-beam, the plates C, provided each with a lug,  $c$  pintle  $c'$ , and openings  $c''$  and  $c'''$ , and the bolt D, passing horizontally through said parts, substantially as and for the purpose specified.

**202,349. HENRY F. JERAULD, and JAMES W. STOLLE,** Vandalia, Ill. Sulky-Plows. April 16, 1878. Filed Jan. 31, 1877.

Claim. The combination of the draft-bars I I, with pulleys J and chains K, equilizer or distance-bar G, with clevis G', and hook F, substantially as and for the purpose set forth.

**204,253. EBENEZER A. SANDERS.** Rockford, Ill. Plow-Clevises. May 28, 1878. Filed Oct. 22, 1877.

The straps that are secured to the beam depend, and are furnished with a single set of holes each. The horizontal plate upon which the double-tree rests is also provided with a horizontal row of holes, the opposite end being furnished with ears, having in each one holes for the clevis-pin, and a curved slot above and concentric. A stud embraces the clevis-pin, and extends above the slot, through which a pin passes from the stud into the dependent part of the clevis.

Claim. 1. The combination, with clevis-plates having depending arms, each of which is provided with a single series of holes, of a horizontal clevis, constructed with upturned ears fitting the clevis plates, said ears provided with holes for the clevis-pin, and a curved slot located above said holes, for connecting the clevis-ears to the plates by studs or a pin extending through the holes in the clevis-plates, substantially as described.

2. The combination, with the clevis-plates having a single series of holes and the horizontal clevis, provided with upturned slotted ears, of the plates  $d$ , having inwardly-projecting studs formed thereon, substantially as described.

3. The combination, with the clevis-plates and the horizontal clevis, provided with upturned slotted ears, of the hammer-strap attached to the clevis-pin and evener, said evener adapted to be laterally adjusted with relation to the horizontal clevis, substantially as described.

**205,327. WM. A. WOODWARD,** North Turnbridge, Vt. Draft-Adjusters for Plows. June 25, 1878. Filed Feb. 25, 1878.

Claim. 1. The combination of the slotted keeper C, the diagonally-grooved sliding block D, the pivoted draft-lever E, the plate-keeper F, the rod G, and the hand-lever H with the beam and handle, as shown and described.

2. The combination of the adjustable catch-plate I with the lever H, the handle B, and the mechanism G D E, as and for the purpose specified.

3. The combination of the adjustable catch-plate I with the lever H and handle B, substantially as herein shown and described.

**206,167. JOSEPH F. ELLIS and CLARK ROBINSON,** Eau Claire, Wis. Plow-Clevises. July 23, 1878. Filed Jan. 5, 1878.

The rear bolt engages the notched ends of the clevis, but opposite each is half cut away, so that by turning the bolt the height of the clevis may be regulated. The front link is drawn toward the open end to move it laterally.

Claim. 1. The centrally-pivoted clevis A, having the notched rear end  $c$ , in combination with the rotating notched locking-bolt E, as shown.

2. The combination of the pivoted clevis A, having the notched rear end  $c$ , the rotary locking-bolt E, and the stop  $b$  as shown.

3. The centrally-pivoted clevis A, having the two notched ends  $c$ , in combination with a single notched bolt locking both ends, as shown and described.

4. The clevis A, having the horizontal front, with notched ribs  $d$  and  $e$ , in combination with the pendent clevis C, having the contracted upper and widened lower end, as and for the purpose described.

**206,511. WILLIAM E. WHITCOMB,** Barre, Vt. Plows. July 30, 1878. Filed May 18, 1878.

Reversible plow-clevis with a long slotted arm, a lever, and the special devices for swinging the clevis right or left.

Claim. 1. In a furrow-gage for plows, the horizontally-swinging clevis F, provided with the slotted extension F', in combination with the sleeve g, enlarged at the top end to fit the countersunk washer h, plow-beam C, and the bolt I, substantially as and for the purpose specified.

2. In a furrow-gage for plows, the clevis F, provided with slotted extension F', in combination with the crank-pin a, slotted crank-plate a', washer-bolt b, and sleeve c, all constructed, arranged, and operating as and for the purpose set forth.

**3.** In a furrow-gage for plows, the rod G, provided with rack e, in combination with guide e', pinion d, sleeve c, crank-plate a' and bolt b, constructed and arranged in the manner and for the purpose as specified.

**4.** In a furrow-gage for plows, the swinging clevis F, rod G, provided with rack e, pinion d, crank-wheel or plate a', bolt b, and sleeve c, all combined and arranged to operate in the manner substantially as shown and described.

**207,375. HENRY M. WILLIS,** Mineola, N.Y. Clevis-Bolts, Aug. 27, 1878. Filed July 2, 1878.

Claim. A clevis having eyes of unequal size, in combination with a bolt moving therein having a head on each end, the head on one end too large to pass through either eye, and the head on the other end passing through but one eye, thereby making the clevis and bolt inseparable, substantially as described.

**208,042. CASPER F. SEARCH,** Chicago, Ill., assignor to Chicago Malleable Iron Company. Clevises. Sep. 17, 1878. Filed July 2, 1878.

Claim. **1.** In a plow-clevis having a cross-head, a draft-shackle adjustably coupled to said cross-head by one or more hooks or claws, and adapted to be turned in one direction and adjusted from side to side, and then turned in the reverse direction and locked in working position, substantially as shown and described.

**2.** The combination, in a clevis, of the coupling-bar B, the claws b b, and the claw receiving openings a' a', all arranged substantially as specified with relation to each other and to the cross-head and the shackle, for the purpose of thereby rendering the shackle adjustable between the forward ends or corners of the cross-head.

**3.** The combination, in a clevis, of the cross-head A, having in its forward end the openings a' a', and a draft-shackle having on its rear end one or more claws, b b, the latter being sufficiently long to more than half inclose the bar extending in front of the said openings, and short enough to admit of the shackle being adjusted laterally on the said bar, substantially as and for the purposes specified.

**4.** The combination of the swivel-jointed draft-shackle B, having on its rear end the claws b b, with the cross-head A of a clevis, the said cross-head having therein the openings a' a', substantially as and for the purposes specified.

**5.** The combination of the fixed beam-plate E, spurred on its forward end, and the pivoted, grooved and slotted cross-head, carrying in its grooves the forked locking device F, the latter having thereon the arm or handle h, entering the locking-slot G, substantially as and for the purposes specified.

**208,621. WILLIAM MASTERS,** Martinsburg, Pa. Plow-Clevises. Oct. 1, 1878. Filed July 6, 1878.

Claim. The combination, with the plow-beam, of the lateral T-loop D, horizontally slotted on its front wall, the vertically-slotted plate C, carrying the forward end of the draft-rod, and the clamp-plate g, having lugs i extending into the slot of the plate C and embracing the loop D, whereby the vertical plate is prevented from turning on the clamp-plate, substantially as specified.

**208,899. HENDERSON ESTES,** Bolton's Depot, Miss. Plow-Clevises. Oct. 15, 1878. Filed Feb. 11, 1878.

Claim. **1.** The two-part clevis D D', separable from each other at the lap-joint at E, and pivoted to the beam by the main bolt B, substantially as set forth.

**2.** The combination, in a clevis, of the two parts D D', with lap-joint at E and catches e<sup>2</sup> e<sup>1</sup>, for the purpose set forth.

**210,877. JAY W. POWERS,** Portage, Wis. Plow-Clevises. Dec. 17, 1878. Filed Aug. 27, 1878.

Claim. **1.** The vertical clevis C, provided at its rear end with the elliptical or oblong hole b, and at its forward end with the anterior notches, a a a, standing at right angles to and interlocking with an ordinary draft-clevis, provided at its forward end with the posterior notches, c c c, the two combining to form one clevis, as specified.

**2.** In combination with the vertical clevis C and the horizontal clevis D, the twisted-link B and the lock-bolt F, substantially as described, and for the purposes specified.

**214,793. JOHN SIMPSON,** Cleveland, Ohio. Clevises. Apr. 29, 1879. Filed Feb. 21, 1879.

Claim. The combination, with a horizontal clevis, of a vertical clevis provided with two horizontal arms, which embrace the former, and a bolt which passes through suitable holes formed in said arms as it fastens the clevises together in any desired relative lateral adjustment, substantially as set forth.

**217,194. JOSEPH F. BEDNAR,** Sterling, Ill. Draft-Hooks. July 8, 1879. Filed Mar. 3, 1879.

Claim. The hook A, turned upward and pivoted so as to remain closed by its own weight, and having beveled end a and recesses i i, operating as rests or stops, in combination with the plate B, having spur f and the flanges b, to engage the recesses i i, substantially as and for the purposes set forth.

**217,352. CHARLES S. ELLS,** Moline, Ill. Clevises. July 8, 1879. Filed Feb. 14, 1878.

The clevis pin has splines which exactly fit the openings in the clevis-plates, but have a

limited vibration in the enlarged holes of the beam-plates, allowing the clevis to rise above, but not fall below, a horizontal position.

**Claim. 1.** The jaws B B, having therein the openings *a a*, the coupling pin D, having thereon the tongues *e e*, and the cross-link C, having therein the openings *c c'*, all combined and arranged substantially as and for the purposes specified.

**2.** The combination, with each other and a coupling-pin, of the beam-plates and the cross-link or clevis-plate of a plow-clevis, each of the said plates having therein openings, shaped as shown, to receive the said pin, and the said pin having at the parts entering both sets of the said openings enlargements, as described and shown, and the said openings admitting of the forward end of the said link or clevis-plate rising above, but not allowing it to fall below a horizontal position, substantially as and for the purposes specified.

**220,983. JAMES F. MITCHEL,** Murray, Ky. Plow-Clevises. Oct. 28, 1879. Filed July 12, 1879.

**Claim.** An adjustable clevis, consisting of a rotary ratchet-disk having its teeth engaged by a pawl and formed with a series of holes or other means of attachment around its circumference, substantially as herein shown and described.

**221,851. ISAAC L. MYERS,** Pine Grove Mills, Pa. Plow-Clevises. Nov. 18, 1879. Filed Sept. 3, 1879.

**Claim.** The draft-rod *c*, secured to the standard B by the plate *c'*, and then beam A, and adjustable laterally at both its forward and its rear ends, and having its forward end held in a sleeve, *b*, adjustable to the direction of the said draft-rod, substantially as and for the purposes set forth.

**224,917. HENRY IWAN and LOUIS IWAN,** Roberts, Ill. Draft Attachments to Plows. Feb. 24, 1880. Filed Jan. 5, 1880.

The draft-rod and clevis are pivoted in the beam-plates, allowing vertical vibration.

**Claim.** The combination, with the plow-beam A, having end brackets, *a*, with holes *b*, of the double bar E, pivoted in the brackets by the bolt *c*, and having adjusting-holes *h*, perforated plate *f*, and jointed draft-rod sections *i*, *k*, substantially as described, and for the purpose set forth.

**226,137. EDMUND WANSBROUGH.** Pittsburg, Pa.; assignor to Alexander Speer & Sons, same place. Clevises. Mar. 30, 1880. Filed Feb. 10, 1880.

By moving the clevis forward on the beams their rear ends are thrown apart.

**Claim. 1.** The combination, with independent beams of a plow or cultivator, of a clevis, A, constructed substantially as described, con-

nected with their forward ends, and adapted to vary the lateral adjustment of the rear ends of said beams by its relative longitudinal adjustment on the forward ends of said beams, substantially as set forth.

**2.** A clevis provided with recesses on opposite sides thereof for the insertion of the forward ends of the beams, a central partition having an elongated slot to allow of the lateral adjustment of the rear ends of the beams by the longitudinal adjustment of the clevis on their forward ends, substantially as set forth.

**3.** A clevis provided with recesses, on its opposite sides for the forward ends of the beams, a central partition having an elongated slot formed therein, and a plate formed on the rear end of said partition of greater width than the thickness of said partition, substantially as set forth.

**226,667. EDWIN R. McCALL,** Lockport, N. Y. Plow Attachments. Apr. 20, 1880. Filed Oct. 21, 1880.

By removing the key the wheel-standard may be unhooked from the clevis and adjusted up or down.

**Claim.** The clevis D, with vertical slot *c'*, and hooks *b b*, in combination with key C, having shoulder *c*, and standard A, with orifices *a a* and hook *d'*, substantially as shown and described.

**228,129. MARION H. SIMMONS,** Atchinson, Kans. Self-Locking Clevises. May 25, 1880. Filed Mar. 25, 1880.

**Claim 1.** As an improved article of manufacture, a clevis constructed, substantially as herein shown and described, of the arm A, having pin C, the arm B, having notch D, the hinging-pin E, the hooks F, and the link G, as set forth.

**2.** In a clevis, the combination of the arms A B, the pin C, the hinging-pin E, the hooks F, and the link G, substantially as herein shown and described, whereby the clevis can be readily attached to a double-tree or other object, and will be held securely in place when in use, as set forth.

**228,916. EDWIN R. McCALL,** Lockport, N. Y. Plow Attachments. June 15, 1880. Filed Apr. 12, 1880.

The standard is slipped into its socket-rings to any desired point and turned half around, when the studs will hold it in position. The draft-book adjusts to the proper height and has a recess to receive the stud.

**Claim 1.** The combination of the standard B, having teeth *d*, adjustable in connection with disks *b b*, and hooks C, with recess *h*, for reception of teeth *d*, substantially as shown, and for the purpose described.

**2.** The combination of the standard B, with orifices *e*, teeth *d*, disks *b b*, with apertures *a''*, shaped for reception of standard, and hook C, with shoulder for reception of a standard-tooth,

substantially as shown, and for the purpose described.

**235, 248. WILLIAM A. JENNINGS,** Dyersburg, Tenn.; assignor of one-half to Samuel R. Latta, same place. Clevises. Dec. 7, 1880. Filed Sept. 18, 1880.

The links allow the clevis to be spread to any desired extent. The swivel-hook adjusts vertically in a series of holes.

Claim. A plow clevis formed of the combination of the link-piece B, the bars C D, hinged hereto, and the bolt E, hinged to one of the bars and adjustably connected with the other, substantially as and for the purpose described.

**237,447. ALBERT SANFORD,** Oshkosh, Wis. Clevises. Feb. 8, 1881. Filed Oct. 9, 1880.

Claim. The combination, with clevises A and D, each having its securing-bolt, of the connecting-bar C pivoted between and supported by the lugs of clevis A and swiveled to clevis D, whereby the plow, harrow, or other object attached to clevis A is enabled to turn laterally or partly or completely over on joints between the securing-bolts of the two clevises, and without disturbing the double-tree attached to clevis D, substantially as described.

**237,772. JAY W. POWERS,** Portage, Wis., assignor to A. Chisholm, Chicago, Ill. Plow-Clevises. Feb. 15, 1881. Filed May 4, 1879.

Claim. The combination, with a thin iron plow-beam provided with the hole *c* and slot *f*, of the clasp A, made to fit over the front end of the beam, and having the hole *c* slot *d*, and the vertical hole *a* through its front end, the clevises C and D, bolt E, having the key *g*, and the draft link F, the parts all being arranged and combined to operate substantially as shown and described.

**238,384. ISAAC R. GILBERT,** Charlestown, Ind. Plow-Clevises Mar. 1, 1881. Filed Nov. 27, 1880.

Claim. 1. The combination, in a plow-clevis, of the side plates, A A, and cross-bar C with the shackle F, having nibs *i i*, all constructed and arranged to operate substantially as and for the purpose set forth.

2. The cross head C, having a series of holes therein, arranged horizontally, and a trough or groove on one or both sides, in combination with the shackle F, provided with the projections or nibs *i i* and bolt *k*, all substantially as and for the purpose set forth.

3. The cross-head C, having ears D D' and tubular bearings *d d'*, in combination with side plates, A A, and side braces, B B', and with their stops *a a'*, all substantially as and for the purpose described.

4. In a plow-clevis, the combination of the

movable side braces, B B', having projections *a a'* and slots *b b*, with the cross head C, provided with ears D D' and tubular bearings *d d'*, all constructed and arranged to operate substantially as herein set forth.

5. The combination of side plates, A A, side braces, B B', cross-head C, bolt E, shackle F, pin *k*, and swivel-clip H, all constructed and arranged to operate substantially as and for the purpose herein described.

**239,700. SOLOMON P. BAUGHMAN,** Herring, Ohio. Clevises. Apr. 5, 1881. Filed Dec. 10, 1880.

Claim. The combination, with clevis, C, pivoted at *a* and having the ears *b b*, of the plate D, swiveled in said ears and centrally threaded, the loosely-jointed and reversely-threaded bolts G E, the fixed nut *f*, the guide F, and the crank *o*, rigidly connected with bolt E, as shown and described.

**239,735. JAMES T. CUNNINGHAM,** near Egypt, Miss. Plow-Beam Attachments. Apr. 5, 1881. Filed Jan. 8, 1881.

Claim. In a plow, the beam A, having its end D provided with the clevis F, in combination with the auxiliary beam B, secured at an angle to the beam A by the bolts *a* and *c* and interposed wedge C, and having the clevis G, and the single-tree K, secured at its middle to the clevis G by the ring I, and at one end by the ring H to the clevis F, substantially as and for the purposes set forth.

**241,709. JAMES H. PALM,** Lexington, Ohio. Plow-Clevis Adjusters. May 17, 1881. Filed Apr. 9, 1881.

Claim. 1. The combination, with a hinged clevis provided with a tongue having a pin, of a wheel provided with a cam-groove, substantially as described.

2. The combination of a plow-beam, *a*, clevis *d*, pivoted thereto, slotted hinged tongue *h*, provided with pin *i*, wheel *n*, provided with cam-groove *m*, and crank-shaft *o*, substantially as described, and for the purpose set forth.

**245,390. CHRISTOPH NECKER,** Weehawken, N. J. Clevises. Aug. 9, 1881. Filed May 9, 1881.

The clevis attachment is on the top of the beam and back of its front end.

Claim. In combination with a plow-beam, the angular clevis B, provided with inwardly-projecting hooks *b* upon its front angle, and bolted to the top of the beam, substantially as shown and described.

**245,432. FRANK BATEMAN,** Spring Mills, N. J., assignor of one-half to Edward S. Bateman, same place. Draft-Equalizers. Aug. 9, 1881. Filed Nov. 24, 1880.

Claim. 1. The combination of the side beams and forward arch of a plow or cultivator frame with the bell-crank draft-levers

G, the long arms of which are bent upward, and are directly connected by a transverse rod, e, in the rear of the arch, as set forth.

**2.** The combination of the side beams and forward arch of the frame, the bell-crank draft-levers G, having upwardly-bent long arms, the transverse connecting-rod e, the pivoted arms D, carrying the levers, and the retaining-plates E, as specified.

**245,448. MORRIS C. CHURCH,** Rock Falls, assignor of one-half to John G. Manahan and Henry C. Ward, both of Sterling, Ill. Clevises. Aug. 9, 1881. Filed Dec. 15, 1880.

The clevis-pin fits the hole in the beam and will not turn in the clevis when dropped in. When the clevis is drawn forward it is also locked in.

Claim. **1.** The clevis-bow A, provided with the slot D in one of its ends, and in its other end the pin-hole C, having the recess a therein, substantially as shown, and for the purpose mentioned.

**2.** An improved clevis, consisting of the clevis-bow A, having the slot D, and the pin-hole C, provided with the recess a, in combination with the pin B, having the recesses c and d, substantially as shown, and for the purpose described.

**3.** The combination of the clevis-bow A having the slot D, and pin-hole C, provided with the recess a, and the pin B, having one or more recesses, c and d, substantially as shown, for the purpose described.

**249,941. MARTIN HUBBELL,** Mount Kisco, N. Y. Clevises. Nov. 22, 1881. Filed May 11, 1881.

Claim. **1.** The combination with the clevis A, provided with a longitudinal groove, B, in the inner edge of its slot C, and with notches D in the opposite edge, of the plow-beam G, of the clevis-ring L, and the key E, substantially as herein shown and described, and for the purpose set forth.

**2.** The combination with the clevis-beam G, with grooves J in its front end, of the clevis with a groove, C, and notches D in the edges of its slot, the key E, the ring L, and latch F, substantially as shown and described.

**251,462. JAMES T. ROGERS,** Westport, Cal. Shackles. Dec. 27, 1881. Filed June 19, 1880.

Link or clevis for uniting adjacent links of a cable detachably.

Claim. The shackle-link A, constructed as shown, and link D, in combination with coupling-pin B, provided with a projection, C, and rib b, said rib being wider than the interior transverse dimission of link D, as set forth.

**254,406. DAVID B. TANGER,** Logan county, assignor of one-half to Charles D. Campbell and Herold E. Knight, Bellefontaine, Ohio. Plow-Governors. Feb. 28, 1882. Filed Feb. 10, 1881.

Straps or links on each side of a horizontal clevis connect to the front side of a vibrating plate. In the rear of the link-pivots in the plate is pivoted the draft-hook. The oscillation thus provided neutralizes any irregularity in the course of the team.

Claim. **1.** In a plow-governor, the sliding plate E, attached at its front end by link connection to the end of the plow-beam, substantially set forth.

**2.** The combination of plate E, links D, adjustable in clevis A, and draft-link G, substantially as set forth.

**3.** A plow-governor having a vibrating plate, E, attached by link connection to the plow-beam, and carrying a draft-pin or bolt moving in an arc as the team swerves from side to side, as described.

**263,768. MOSES A. CULVER,** Dayton, Ohio. Plow and Drag Attachments. Sep. 5, 1882. Filed Jan. 17, 1882.

Claim. **1.** The combination of the trace-hooks o and slings m, provided with rings n, double sling k, and means of raising the same, all substantially as shown and described.

**2.** The combination of the slings m m k, arm d', bell-crank C, arm d, and rope g with the beam A, substantially as shown and described.

**268,785. CHARLES F. DULING,** Charleston, W. Va. Clevises. Dec. 12, 1882. Filed May 20, 1882.

Claim. The combination, substantially as described, with the link a, having its arms formed with the openings a<sup>2</sup>, of the pin b, provided with the head b' and the end projection, b<sup>2</sup>, constructed with the depression b<sup>3</sup> in its rear, and the projection b<sup>1</sup> in the front of the same in longitudinal line from the depression b<sup>3</sup>, the said pin being adapted to be inserted and turned within the openings a<sup>2</sup> of the link, and operating substantially as set forth.









| Plate Claim                             | Plate Claim | Plate Claim |
|---|-------------|-------------|
| Adams, S. J.                            | 153         | 91          |
| Adams, C. and S. J.                     | 153         | 91          |
| Addams, A.                              | 158         | 94          |
| Aldrich, A.                             | 151         | 90          |
| Aldrich, A.                             | 154         | 91          |
| Allen, D.                               | 137         | 84          |
| Allen, E.                               | 257         | 93          |
| Almy, D.                                | 115         | 75          |
| Armstrong, J. and G.                    | 135         | 83          |
| Aughe, J.                               | 118         | 76          |
| Augspurger, J.                          | 147         | 88          |
| Bagwell, P. A.                          | 154         | 92          |
| Baker, J. W.                            | 129         | 80          |
| Beal, F. R. and Clark, S.               | 145         | 87          |
| Beals, J. S.                            | 113         | 74          |
| Beals, J. S.                            | 116         | 75          |
| Beckwith, P. D.                         | 117         | 76          |
| Bement, A. O.                           | 151         | 90          |
| Bertrand, T. F. and Sames, P.           | 115         | 74          |
| Bolick, W. A., J. D. and Fawcett, J. T. | 150         | 89          |
| Bowscher, N. P.                         | 155         | 92          |
| Bradley, B. C.                          | 161         | 96          |
| Bristol, L. C.                          | 132         | 81          |
| Burlingame, A. H.                       | 149         | 89          |
| Burlingame, A. H.                       | 155         | 92          |
| Butler, M.                              | 133         | 82          |
| Capehart, T.                            | 166         | 99          |
| Casbeer, S.                             | 114         | 74          |
| Chapman, L.                             | 158         | 94          |
| Chubb, E. A.                            | 123         | 78          |
| Chubb, A. L.                            | 158         | 93          |
| Clayton, J.                             | 152         | 60          |
| Clayton, J.                             | 159         | 94          |
| Cloie, W.                               | 142         | 80          |
| Collett, W. H.                          | 141         | 85          |
| Comoyer, O. J.                          | 105         | 98          |
| Curkendall, G.                          | 124         | 79          |
| Currier, H. A.                          | 161         | 95          |
| Custer, J. and Rowland, C.              | 113         | 74          |
| Davis, A. M.                            | 137         | 84          |
| Deane, G. S.                            | 119         | 77          |
| Delano, H.                              | 111         | 73          |
| Densmore, J.                            | 143         | 86          |
| Dillenback, D.                          | 127         | 80          |
| Dodge, G.                               | 116         | 75          |
| Dodge, J.                               | 131         | 81          |
| Dodge, G.                               | 153         | 91          |
| Eastwood, I.                            | 126         | 80          |
| Eaton, E. C.                            | 107         | 99          |
| Emerson, R.                             | 134         | 82          |
| Farber, M. W.                           | 163         | 97          |
| Farmer, A. H.                           | 144         | 87          |
| Ferguson, S. T.                         | 139         | 84          |
| " " "(R.)                               | 139         | 84          |
| Furst, C.                               | 124         | 78          |
| Gabel, A. C.                            | 140         | 85          |
| Gale, H.                                | 125         | 79          |
| " " "(R.)                               | 126         | 79          |
| Gale, H.                                | 135         | 82          |
| " " "(R.)                               | 135         | 83          |
| Galentine, H.                           | 130         | 80          |
| Gaunt, F.                               | 154         | 92          |
| Genzly, J.                              | 142         | 85          |
| Gibbs, L.                               | 132         | 81          |
| " " "(R.)                               | 132         | 81          |
| Gibbs, M. L.                            | 151         | 90          |
| Gibson, D. D.                           | 159         | 80          |
| Graves, R.                              | 156         | 93          |
| Gross, J. G.                            | 157         | 93          |
| Hague, C. A.                            | 162         | 96          |
| Hague, C. A.                            | 162         | 96          |
| Hall, T. J.                             | 112         | 73          |
| " " "(R.)                               | 112         | 73          |
| Hall, J. H.                             | 118         | 76          |
| Hartman, C. R.                          | 161         | 95          |
| Hathaway, S.                            | 148         | 89          |
| Heckendorf, J.                          | 140         | 85          |
| Higgins, R. S.                          | 119         | 77          |
| Hovis, J. T.                            | 129         | 80          |
| Hoxie, H. S.                            | 119         | 77          |
| Huber, S.                               | 129         | 80          |
| Hughes, D. W.                           | 158         | 94          |
| Hughes, D. W.                           | 123         | 78          |
| Hughes, D. W.                           | 140         | 85          |
| Jarrell, E.                             | 148         | 88          |
| Jenkins, C. S.                          | 162         | 96          |
| Johnston, J. S.                         | 124         | 79          |
| Johnston, J. S.                         | 138         | 84          |
| Jones, D.                               | 136         | 83          |
| Keith, H. M.                            | 126         | 79          |
| Keith, H. M.                            | 127         | 80          |
| Keith, H. M.                            | 130         | 81          |
| Kellogg, A. A.                          | 164         | 97          |
| Kersb, A. J.                            | 164         | 97          |
| Kettenring, P.                          | 165         | 98          |
| Kloss, R.                               | 167         | 99          |
| Knoblock, J. C. and Bissell, T. M.      | 146         | 87          |
| Lane, J.                                | 121         | 78          |
| Lane, M. W.                             | 132         | 81          |
| Lane, J.                                | 151         | 90          |
| Lane, J.                                | 157         | 93          |
| Lane, Joseph,                           | 157         | 93          |
| Lawrence, W. S.                         | 137         | 83          |
| Lawrence, W. S.                         | 138         | 84          |
| Lawrence, W. S.                         | 141         | 85          |
| Lawrence, W. S.                         | 145         | 87          |
| Leonard, J. M.                          | 127         | 80          |
| Leonard, J. M.                          | 128         | 80          |
| Lewis, J. W.                            | 122         | 78          |
| Long, J.                                | 112         | 73          |
| Loomis, G. D.                           | 152         | 90          |
| Lovell, S. M.                           | 141         | 85          |
| Lyon, G. C.                             | 138         | 84          |
| McGregor, W.                            | 149         | 89          |
| Manny, A. J.                            | 159         | 94          |
| Manny, A. J.                            | 166         | 98          |
| Manwaring, K. W.                        | 139         | 84          |
| Manwaring, K. W.                        | 155         | 93          |
| Manwaring, K. W.                        | 159         | 94          |
| Manwaring, K. W.                        | 160         | 95          |
| Marable, T. E.                          | 119         | 77          |
| Masters, B. F.                          | 122         | 78          |
| Matteson, D. C. and Wil-                | 136         | 83          |
| liamson, T. P.                          | 121         | 78          |
| Matthews, E. G.                         | 125         | 79          |
| Matthews, E. G.                         | 150         | 89          |
| Meikle, T.                              | 150         | 87          |
| Mellon, W. H.                           | 145         | 87          |
| Miller, L. and Lighthall, H.            | 160         | 95          |
| Mitchell, R. B.                         | 149         | 89          |
| Moore, G.                               | 142         | 85          |
| Morris, D. and Speirs, H.               | 167         | 99          |
| Muir, A.                                | 139         | 84          |
| Nash, C.                                | 133         | 82          |
| Newton, R.                              | 123         | 78          |
| Nichols, J. R.                          | 134         | 82          |
| Noble, H. T.                            | 153         | 91          |
| Nott, G. G.                             | 160         | 95          |
| Oldendorph, H. and J.                   | 156         | 93          |
| Oliver, J.                              | 142         | 86          |
| Oxford, J.                              | 148         | 88          |
| Pates, T.                               | 152         | 90          |
| Perfater, G. S.                         | 120         | 77          |
| Pfeil, J. C.                            | 118         | 76          |
| " " "(R.)                               | 118         | 76          |
| Pierpont, J.                            | 146         | 88          |
| Pinkham, J.                             | 128         | 80          |
| Pinkham, J.                             | 131         | 81          |
| Pitcher, L. B.                          | 117         | 76          |
| Pitcher, R. L. and Elwood,              | 120         | 77          |
| R.                                      | 120         | 77          |
| Porter, J. F. F.                        | 145         | 87          |
| Potter, M.                              | 134         | 82          |
| Pykiet, G. F.                           | 127         | 80          |
| Reynolds, E. D. and O. B.               | 163         | 96          |
| Rice, E. S.                             | 117         | 76          |
| Richards, M.                            | 124         | 79          |
| Rick, F.                                | 143         | 86          |
| Robinson, J. G.                         | 121         | 78          |
| Ross, A. M.                             | 163         | 96          |
| Rowell, G. D.                           | 122         | 78          |
| Runnyon, J. and Ingersoll,              | 122         | 78          |
| R.                                      | 133         | 82          |
| St. John, G. B.                         | 161         | 95          |
| Sanders, E. A.                          | 146         | 87          |
| Sater, H. H.                            | 164         | 97          |
| Sattley, M.                             | 120         | 77          |
| Schram, A. C.                           | 160         | 95          |
| Sheenan, T.                             | 125         | 79          |
| Shewell, O. M.                          | 136         | 83          |
| Sherman, J. H.                          | 116         | 75          |
| Skinner, J. B.                          | 114         | 74          |
| Skinner, J. B.                          | 115         | 75          |
| Skinner, J. B.                          | 116         | 75          |
| Skinner, H. M.                          | 126         | 79          |
| Skinner, H. M.                          | 133         | 82          |
| Slocum, M. D.                           | 149         | 89          |
| Smith, F. C.                            | 111         | 73          |
| Smith, F. F.                            | 120         | 77          |
| Smith, J. M.                            | 125         | 79          |
| Smith, J. M.                            | 130         | 81          |
| Smith, G. K.                            | 143         | 86          |
| Spicer, A. J.                           | 128         | 80          |
| Spink, M. A.                            | 113         | 73          |
| Spink, M. A.                            | 165         | 98          |
| Steller, C. E.                          | 121         | 78          |
| Steller, C. E.                          | 147         | 88          |
| Stillman, W. W.                         | 113         | 74          |
| " " "(R.)                               | 114         | 74          |
| Thomas, C. H.                           | 134         | 82          |
| Thompson, C. R.                         | 143         | 86          |
| Thomson, G. and J.                      | 140         | 85          |
| Thomson, R. B.                          | 146         | 87          |
| Trump, G.                               | 130         | 81          |
| Tuttle, B. W.                           | 131         | 81          |
| Tuttle, B. W.                           | 131         | 81          |
| Twigg, C. W.                            | 152         | 90          |
| Underwood, F. J.                        | 123         | 78          |
| Vincent, C. C.                          | 166         | 99          |
| Wansbrough, E. and Speer,               | 147         | 88          |
| W. W.                                   | 147         | 88          |
| " " "(R.)                               | 147         | 88          |
| Wansbrough, E. and                      | 147         | 88          |
| Speer, W. W.                            | 159         | 94          |
| Way, S.                                 | 128         | 80          |
| Webber, A. P.                           | 137         | 83          |
| Webster, J. B. and                      | 144         | 87          |
| Baxter, R.                              | 117         | 76          |
| Webster, T. L.                          | 136         | 83          |
| Welling, W. J.                          | 150         | 89          |
| Whitbeck, G. V. H.                      | 144         | 87          |
| Whiteman, E. B.                         | 155         | 92          |
| Whittlesey, A. and A. K.                | 111         | 73          |
| Wiard, E.                               | 135         | 82          |
| Wiard, T.                               | 141         | 85          |
| Wilder, W. H.                           | 150         | 90          |
| Willard, W. H.                          | 112         | 73          |
| Wisner, H. E.                           | 156         | 93          |
| Wood, J. W.                             | 144         | 86          |
| Woodcock, B. (A. I.)                    | 111         | 73          |
| Young, I.                               | 115         | 75          |
| Young, W. B.                            | 165         | 98          |
| Zeller, J. P.                           | 138         | 84          |

## COLTERS.

**13. BANCROFT WOODCOCK,** Mount Pleasant, Pa. Plows. June 14, 1838. (A.I.) to Patent dated June 14, 1837.

As described in my patent, the reversing cutter was made flat on the side which fitted into the recess on the land side, made to receive it. I now cast it with three projections  $\alpha\alpha\alpha$  on the three cutting edges, rising in a regular slope from each of the cutting edges and undercut at each of the edges, so as to slip over upon the front edge of the land side and thus to protect it from being worn, and at the same time to hold the reversing cutters in place. Instead of fastening the reversing cutter by a wedge, I now fasten it by means of a countersunk screw, recesses are cast in the band side to admit two of the projections  $\alpha\alpha$ , while the third is in use.

Claim. The forming of the projections  $\alpha\alpha\alpha$ , upon my said reversing cutter, in the manner set forth, to slip over upon and protect the three edges of the land side.

**2,529. HOWARD DELANO,** Mottsville, N. Y. Colters. Apr. 1, 1842.

Claim. The combination and employment with a plow of a revolving colter which is serrated or furnished with teeth around its periphery, so sharpened as to constitute cutting edges, and to operate substantially in the manner herein set forth.

**5,526. FREDERICK C. SMITH,** Harpers Ferry, Va. Plow Colters. Apr. 25, 1848.

The nature of my invention consists in the combination of a colter with the share and mold-board in such a manner that the colter, serves not only the purpose of a colter, but also as a cutting-edge at the front of the mold-board and as a supporting-brace for securing the share and mold-board to each other.

Claim. The combination of the inclined self-clearing colter and point (in one piece with the share and mold-board) in such a manner that the colter serves not only the purpose of a colter, but also as a cutting edge for the mold-board and a supporting brace for giving stiffness and strength to the share and mold-board, substantially as herein set forth, not confining myself to the identical manner of accomplishing this object, as herein set forth, but to something substantially the same.

**7,736. AUSTIN and AUSTIN K. WHITTELEY,** Spring Port, N. Y. Fastening of Colters to Plows. Oct. 22, 1850.

Claim. The construction of the double plates, held in parallel position by the combined action of the colter and the bolts K, K, substantially as described, and for purposes as above set forth.

**12,627. THOS. J. HALL,** Tawakama Hills, Texas. Plows. Apr. 3, 1855.

The cutter B swivels in the beam A, and is supported by an arm near its edge so as to follow the direction of the point of the beam.

I do not claim a cutting wheel in connection with a plow, as this has been done repeatedly.

Claim. So hanging the cutter to the beam that it may swivel therein, in combination with the supports at the edge of the wheel, substantially as set forth and described.

**3,782. THOMAS J. HALL,** Bryan, Texas, for himself, and Henry P. Stockton and Robert P. Lane, Rockford, Ill., assignees of Thomas J. Hall. Plows. Patented Apr. 3, 1855. No. 12,627; extended seven years; reissued Dec. 28, 1869.

Claim 1. The cutter or colter-wheel B, freely revolving on its own axis, when attached to the beam A of a plow, so that it will swivel or turn in such attachment, and the wheel colter be free to vibrate laterally, and follow the line of draught or direction given to the beam of the plow, in the manner described.

2. The combination of the slotted rod b, curved arms c c, and wheel colter B, with the swiveling of the rod b in the beam A, in the manner and for the purpose substantially as herein described.

**34,893. JOSIAH LONG,** Leavenworth, Ind. Cutter Attachments to Plows. Apr. 8, 1862.

This invention consists of a curve cutter attached to the front part of a mold board, and attached at its extremity to the beam by a staple. A brace extends back from the cutter, and is attached to the upright shaft of the plow so as to form a substantial support for the whole.

Claim. The cutter, constructed as described, attached to the plow, as and for the purposes set forth.

**37,065. W. H. WILLARD,** Cleveland-Ohio. Revolving Extension Colters and Gauge Wheels Combined. Dec. 2, 1862.

The rim of the gauge wheel, which latter is attached to the plow beam in the ordinary manner, is made in two parts secured in place by means of nuts and screws. The extension colter consists of four segmental steel plates, in which slots are made so as to allow them to slide upon the connecting bars and extend more or less beyond the face of the wheel, between the rims of which they are clamped.

Claim. A gauge wheel and revolving extension colter, constructed and operating substantially as and for the purpose specified.

**48,849. M. A. SPINK,** DeKalb, N. Y. Stubble Colters. July 18, 1865.  
This invention consists in making a shank

with a curvature near the lower part and terminating at its junction with the blade. The blade projects upward near the plow beam, and has a curved point.

Claim. The herein described colter, consisting of the shank A, and blade B, the same being constructed as and for the purposes set forth.

**53,773. J. S. BEALS**, Alabama Centre, N. Y. Plows. Apr. 10, 1866.

This invention relates to a new and useful improvement in that class of plows which have supplemental shares attached for the purpose of removing the sod or surface-soil separately from the earth turned over by the main share and mold-board, and to throw said sod or surface-soil into the bottom of the furrow made at the previous passage or bout of the plow, so that the lower soil turned over by the main share or plow will be thrown directly on the top of the sod or surface-soil.

Claim. The supplemental share D, constructed substantially as shown and described, and attached to the plow-beam at the rear of the colter and point of the share of the main plow, as and for the purpose herein set forth.

**55,472. JACOB CUSTER and CHARLES ROWLAND**, Clinton, Ill. Plow-Colters. June 12, 1866.

The arc-shaped colter has tenoned ends which fit indifferently into the share or sheath, permitting its reversal when worn; a forked brace depends from the beam.

Claim. 1. The construction of a self-supporting colter in the form of an arch resting on its abutments, the share and post, and which from its peculiar construction and application is reversible and equivalent to two single colters, which form one arch, or arc of a circle.

2. The construction of the rod in combination with the colter, which rod passes through the beam and descends to and down at each side of the colter in the form of a fork, substantially as shown and described.

**57,007. WILLIAM W. STILLMAN**, Mount Hawley, Ill. Cultivator-Plows. Aug. 7, 1866.

The shank of the rotary colter is pressed up through a socket clamp, and provided with a collar and set-screw to secure it in any position.

Claim. The shank B, the collar C, and the clamp E, arranged and used substantially in the manner and for the purpose set forth.

**4,597. WILLIAM WARREN STILLMAN**, Mount Hawley, assignor to Ralph Emerson, Rockford, Ill. Plow-Colters. Patent 57,007, dated Aug. 7, 1866. Reissued Oct. 17, 1871.

Claim. 1. The clamp constructed as hereinbefore described, with jaws to embrace the upper and lower sides of the plow-beam, pinch-screws to clamp the beam, and eyes for the

colter-spindle, to adjust the colter laterally, as set forth.

2. The combination of the eyes on the clamp, the colter-spindle adjustable endwise therein, the collar embracing the spindle between the eyes, and the pinch-screw clamping the collar on the spindle, substantially as set forth, to adjust the spindle vertically.

3. The combination of the colter, its spindle, the collar, the clamp, and the set-screw; all these parts being constructed and operating in combination, substantially as set forth, to limit the vibration of the colter.

4. The combination of the laterally-adjustable clamp, the vertically-adjustable swiveling-colter, and the set-screw or stop to limit the vibration of the latter, while allowing it to conform to the line of draft; these members being constructed to operate in combination substantially as before set forth.

**57,200. J. B. SKINNER**, Rockford, Ill. Plows. Aug. 14, 1866.

Instead of being rigid the colter swivels in its socket and is vertically adjustable by washers beneath the beam.

Claim. 1. Swivelling the colter or cutter for plows or cultivators in sockets or brackets, so attached to the beam as will permit the colter or cutter a lateral and vertical adjustment, substantially as and for the purpose set forth.

2. Giving the swiveled colter or cutter both a vertical and horizontal adjustment, substantially in the manner and for the purpose set forth.

**57,286. SAMUEL CASEBEER**, Roseburg, Oregon. Plow-Colters. Aug. 21, 1866.

The foot of the colter is stepped into the land-side, and its point lies upon the nose of the share.

Claim. The application to plows of the aforesaid colter, in the way and manner herein described.

**57,909. CHESTER B. HUNTING**. Clinton, Ill. Plows. Sep. 11, 1866.

The cutting disk is attached to the land-side and is revolved by the passage over it of the sod.

Claim. A cutter in the form of a disk, and attached to a plow so as to cut from bottom to top, for the purposes and substantially as herein described.

**61,508. THEOPHILUS F. BERTRAND and PETER SAMES**, Rockford, Ill. Plows. Jan. 29, 1867.

The colter has a limited oscillation and is vertically adjustable in its frame, which is attached to the side of the beam.

Claim. 1. A vibrating colter, when limited in its vibrations, substantially in the manner and for the purpose set forth.

2. Adjusting the colter vertically, substantially in the manner and for the purpose described.

**61,980. ISAAC YOUNG,** Byhalia, Miss., assignor to himself and Isham H. Hayes, same place. Plows. Feb. 12, 1867.

The bent colter in front of the share scrapes and cuts a track in advance.

Claim. The attachment C, to a shovel or other plows, when shaped and operating substantially as and for the purposes herein specified.

**64,619. DARWIN ALMY,** Tiverton Four Corners, R. I. Plows. May 14, 1867.

The wheel has its bearings in links suspended from the beam, and is adjusted by a lever connected by a rod to the middle joint of the links.

Claim. The arrangement of the lever D, the rod b, and the links e' and g, connected with the guide-wheel E, for regulating the depth of the furrow of a plow, operating as herein described.

**66,259. JAMES B. SKINNER,** Rockford, Ill. Plows. July 2, 1867.

The swinging rotating colter is hung on upper and lower oscillatable bracket plates, and is vertically adjustable therein by washers placed on the spindle above or below the plates. A stop pin passed diametrically through the spindle limits oscillation.

Claim. 1. Adjusting the colter, both vertically and laterally, substantially in the manner described.

2. The combination of the colter spindle with the bracket plate and socket, as shown in Fig. 1.

3. The combination of the colter spindle with double bracket plates and stop pin, as shown in Fig. 2.

4. The combination of the laterally adjustable bracket plate, spindle socket, and diagonal clamp, as shown in Fig. 3.

5. The combination of the spindle, laterally adjustable bracket plates and clamp bolts, as shown in Fig. 4.

6. The combination with the caster spindle of a series of locking washers, as shown in Fig. 5, for the purpose described.

**66,260. JAMES B. SKINNER,** Rockford, Ill. Plows. July 2, 1867.

The shank of the rotating colter is attached to the square end of a transverse pin beneath the beam, and is limited in oscillation by shoulders upon the pin.

Claim. 1. The combination of the caster yoke with the horizontal caster spindle, as shown in Fig. 1.

2. The combination of the caster yoke with the horizontal caster spindle by pivoting the yoke on a vertical pin in the loop on the spindle, as shown in Fig. 2, for the purpose of pre-

venting wobbling of the colter, and yet leave it free to vibrate laterally.

3. The combination of the caster yoke with the squared thimble turning on the fixed spindle projecting from the bracket plate, as shown in Fig. 3.

4. The combination, substantially as described, with the horizontal caster spindle o of the double half-round boxes p suspended in the loops p' and a cross-bar P, for the purposes set forth.

**67,222. J. H. SHERMAN,** Galesburg, Ill. Rolling Cutter for Plows. July 30, 1867.

The frame of the cutting wheel is attached by sockets to the standard; the cutter follows behind the standard and has lateral play.

Claim. 1. The frame B B', separate from the standard but attached to it by means of sockets or socket, allowing a lateral play of the frame about the standard substantially as set forth.

2. The form of sockets C C fitting the standard at its front edge, but sufficiently open at the back part to allow a lateral swing of the frame, substantially as and for the purpose set forth.

**67,513. GEORGE DODGE,** Kalamazoo, Mich. Plow Wheels. Aug. 6, 1867.

The hub and axle are cast with a chill and have a cap at the outer end of the hub and a socket on the arm for the inner end thereof. A groove extends around the hub and a slot is made through the socket for the escape of extraneous matters.

Claim. 1. A gauge wheel for a plow, having its hub B and axle C cast with a chill, for the purpose set forth.

2. The recess d in the exterior of the hub B of the wheel, in combination with the slit or slot e in the socket a, substantially as and for the purpose specified.

3. The combination of the cap b with the socket a, applied to the hub B of the wheel, and secured thereon, substantially in the manner and for the purpose set forth.

**68,152. J. S. BEALS,** Alabama Centre, N. Y. Plows. Aug. 27, 1867.

The upper share is attached to a standard secured to the beam in the place of an ordinary colter; the colter being also secured to the same standard. The share is reversible.

Claim. 1. Making the opposite ends of the share D equal to each other so as to provide the same with double cutting edges a a, substantially as and for the purpose herein shown and described.

2. Securing the share D to the lower portion of a bar E which is adjustable on the standard F by means of set screw e, substantially as and for the purpose herein shown and described.

3. Securing the colter G on the lower end of the same standard on which the supplemen-

tary share D is arranged, substantially as and for the purpose herein shown and described.

**71,057. LEMAN B. PITCHER,** Salina, N. Y. Roller Wheels for Plows. Nov. 19, 1867.

The axle is cast with the roller and is journaled in the cups set in the segment frames. The rims of the cups enter cylindrical cavities in the sides of the roller.

Claim. 1. The segment frames B B and the cups C C when applied to the roller wheel for plows and cultivators, each separately and in combination with each other, substantially as and for the purposes described.

2. The same parts, in combination with the roller wheel A operated upon the shaft  $\alpha\alpha$ , substantially as and for the purposes described.

**71,827. J. B. WEBSTER and ROBERT BAXTER,** Stockton, Cal. Plow Wheels. Dec. 3, 1867.

The faces of the usual cast plow wheel are boxed up to prevent introduction of weeds and dirt.

Claim. The board or plates  $\alpha$ , Fig. 1, in combination with the wheel, as and for the purpose hereinbefore described.

**73,564. P. D. BECKWITH,** Dowagiac, Mich. Plow Gauge Wheels. Jan. 21, 1868.

The spindle is cast upon one side of the wheel, and the box upon the lower end of the shank.

Claim. 1. The axle or skein B cast upon the wheel A, as and for the purpose set forth.

2. The shank C, with a hub cast upon its lower end, and used in combination with the wheel A and its axle B, substantially as herein set forth.

**75,054. E. S. RICE,** Paw Paw, Mich. Plow Wheels. Mar. 3, 1868.

The axle enters a close socket in the wheel, and the hub has a circumferential collar upon its inner edge, which is covered by the removable collar upon its standard. The latter collar serves to retain the wheel and to keep dirt from the journal.

Claim. The combination of a removable collar C with the wheel D, axle B, and standard A, said collar being removably attached to the said standard, and passing around a flange formed upon the hub or axle of the wheel, substantially as herein shown and described and for the purpose set forth.

**75,237. JEFFERSON AUGHE,** Dayton, Ohio. Colter Holders. Mar. 10, 1868.

The colter rests between projections upon the outer disks. The disks have counterpart serrations upon their engaging faces, and the axial bolt being loosened, the outer disk may be turned upon the inner one to adjust the cutter.

Claim. The combination of the plates or disk C, colter B, beam A, and bolt e, substantially as described, and for the purpose specified.

**75,414. JAMES H. HALL,** Mayesville, Ky. Attaching Colters to Plow Beams. Mar. 10, 1868.

The side plate upon which the colter is clamped has longitudinal adjustment on the beam, to allow a similar adjustment in the colter.

Claim. The said wrought-iron sliding plate, with its flanges, mortises, and adaptation to the purpose of regulating the position of and holding fast the cutter to a plow beam.

**76,343. JOHN C. PFEIL,** Argenville, Ill. Rotary Cutters for Plows. Apr. 7, 1868.

The collar-bearing, journal arms of the cutter disk are pivoted on the vertical adjustable cutter arm so as to turn freely thereon in manner of a caster.

Claim. 1. The peculiar arrangement and combination of the spindle B on cutter arm A, and collar M with holes B therein, for the purpose of forming a caster joint for cutter E, substantially in the manner and for the purposes herein specified.

2. The slots L L in the cutter arm A, whether the said arm be for a rotary or any other kind of cutter, where said slots are used to allow of vertical adjustments of said cutter, substantially in the manner and for the purpose herein specified.

3. The pin C, when said pin serves both to secure the collar M on the spindle A, and to limit the rotary or caster motion of the cutter E, in the manner and for the purpose herein specified.

**4,533. JOHN KASPER PFEIL,** Arenzville, Ill. Plows. Patent 76,343. Apr. 7, 1868. Reissued Aug. 29, 1871.

Claim. 1. The combination of the slotted spindle on the arm of the colter, the yoke slotted to receive the spindle, and the locking-pin limiting the vibration of the colter, all these members being constructed and operating as hereinbefore set forth.

2. The combination of the plow-beam, the clamping-bolts, the vertically-slotted arm, its slotted spindle, the yoke slotted to receive the spindle, and the locking-pin, all these members being constructed and operating in combination, as hereinbefore set forth.

3. The combination of the colter, its slotted yoke turning on a fixed spindle, and the spring-pin passing transversely through the spindle and serving to limit the vibration of the colter, as well as to connect the spindle and colter, all these members being constructed and operating in combination, as hereinbefore set forth.

4. The combination, in a plow-colter, of a vertically-adjustable arm, the downward-tapering spindle thereon, and the colter-yoke having an upwardly-flaring hole or socket therein to receive the spindle, all these members being constructed and operating, as hereinbefore set forth, to compensate wear of the spindle or socket to secure a snug joint and to prevent

the wobbling of the colter yoke upon the spindle.

**5.** The combination of the tapering spindle of the colter-arm with the spring locking pin passing transversely through it parallel with the face of the arm, these members being constricted and operating as hereinbefore set forth.

**77,616. HORACE S. HOXIE,** Adrian, Mich. Plow Colters. May 5, 1868.

The colter is attached by a shackle to the beam and has brace plates by which the share and mold board are attached. Bolts secure the parts together.

Claim 1. In combination with the colter A, the braces *a*, *b*, and D, mold board B, tension *h*, all constructed in the manner set forth and described.

**2.** The combination of the mold board B and colter A, when both are made in one piece, or welded together in the manner set forth and described.

**78,934. GAIUS S. DEANE,** Grand Rapids, Mich. Gauge Wheels for Plows. June 16, 1868.

When the hollow axle becomes worn the bolt which secures it to the standard may be loosened and the axle turned half round, so that the wear will come on the other side. The false hub, when it becomes too loose, may be easily removed, and replaced by a new one.

Claim 1. The combination of a false hub, E, with the hub of a cast-iron plow wheel, substantially as herein shown and described, and for the purpose set forth.

**2.** The hollow axle C secured to the standard A by a bolt, D, substantially as herein shown and described, and for the purpose set forth.

**3.** The combination of the recessed standard A, bolt D, hollow axle C, cap F, removable false hub E, and cast-iron wheel B, with each other, said parts being constructed and arranged substantially as herein shown and described, and for the purposes set forth.

**81,187. T. E. MARABLE,** Petersburg, Va., assignor to himself and S. A. Plummer, same place. Cutter Attachments for Plows. Aug. 18, 1868.

While the mold board runs under the ground, the edges of the cutter graze the surface. It may be set up or down to adapt it to the depth of furrow.

Claim 1. The cutter F, when constructed and arranged, in connection with a plow, so as to scrape the surface of the ground in front of the mold board and the whole width of the furrow, cutting the weeds, grass, &c., therefrom, and casting them out of the way of the plow, on the side opposite to the mold board.

**2.** The combination of the plow B, beam A, cutter F, shank G, and box strap H, substantially as described.

**83,061. ROZANDER S. HIGGINS,** Olney, Ill. Plows. Oct. 13, 1868.

Friction upon the land side is obviated by the colter which counteracts the "side draft." Friction upon the sole of the plow also is avoided.

Claim. The combination of the prolonged colter I with its rearwardly-curved cutting point *i'*, and the obliquely presented share D, so arranged that its sole does not run into contact with the floor of the furrow, all constructed and operating as and for the purposes herein specified.

**84,374. G. S. PERFATER,** Camp Point, Ill. Root Cutter. Nov. 24, 1868.

A revolving cutter works in the rear of, and above, a fixed cutting point, and also in a slit in a curved shank that supports the fixed cutter.

Claim 1. The revolving cutter A and a fixed cutter G, when constructed and operating substantially as described.

**2.** The pivoted plate E and curved shank H, having a slit *d*, in combination with the revolving cutter A and fixed cutter G, substantially as described.

**84,380. MALSHALL SATTELY,** Taylorsville, Ill. Revolving Colters for Plows. Nov. 24, 1868.

The lower portion of the upright is bent at right angles and slotted to receive the swivel bolt, and is inserted in a slot in the swivled arm attached to the wheel.

Claim 1. The slotted upright D, constructed substantially as herein shown and described, and for the purpose set forth.

**2.** The wrist or swivel bolt C, constructed substantially as herein shown and described, and washers E, in combination with the slotted upright D, and slotted end of the swiveled arm B, as and for the purpose set forth.

**85,957. R. L. PITCHER and R. ELWOOD,** Sycamore, Ill. Revolving Colters. Jan. 19, 1869.

Claim 1. The clamp A A, terminating in a slotted plate C, in combination with the cylinder F, bolt E, and plate H, arranged to adjust the colter laterally, as herein described.

**2.** The cylinder F, plate H, having the stop I, arms J, and plate C, arranged to adjust the colter M laterally and vertically, substantially as set forth.

**85,971. FRANCIS F. SMITH,** Collinsville, Conn., assignor to himself and the Collins Company, same place. Plow Colters. Jan. 19, 1869.

Claim. The combination, above described of the colter A attached to the beam D, by means of the side wise slot in the top of the colter, so that the beam shall be adjustable in a sidewise direction, without altering the position of the colter with reference to the landside.

**87,220. C. E. STELLER,** Chicago, Ill. Revolving Colters. Feb. 23, 1869. Antedated Feb. 11, 1869.

Claim. 1. The socket D, arranged and constructed substantially as and for the purpose set forth.

2. The combination of socket D, shank C and wedge V, arranged to operate the cutter F, substantially as described.

**87,420. E. G. MATTHEWS,** Newton, Mass. Plows. Mar. 2, 1869.

Claim. 1. The combination with the under side of the plow beam A of a slotted stock D, for supporting the sward-cutter E, substantially as described.

2. The combination with the stock D and beam A of the intermediate guard-plate e, substantially as an for the purposes set forth.

3. The combination and relative arrangement of the parts marked A, C, D, E, and e, as shown and described.

**88,309. JOHN LANE,** Chicago, Ill.; assignor to himself, C. H. Hapgood, William B. Young, and G. H. Laughton, same place. Plow-Colters. Mar. 30, 1869.

Claim. 1. Imparting to the colter A a lateral adjustment, by making that portion D of its bearing which comes in contact with the beam, rounded, substantially as described.

2. The combination of the holder C and slotted adjustable block D, for holding the colter in position, and adjusting the same vertically, as set forth.

3. The corrugated or grooved plate F, in combination with the holder C and staple E, for adjusting the colter, and adapting it to plows with different sized beams, substantially as set forth.

4. The holder C, constructed as described and having the diagonal groove for the staple, as set forth.

5. The combination of the holder C, adjustable slotted plate D, and standard B, with the pin a, all constructed and arranged to operate substantially as and for the purpose set forth.

**88,414 JOHN G. ROBINSON,** Springfield, Ill. Trench Plows. Mar. 30, 1869. Antedated. Mar. 22, 1869.

Claim. The attaching this stationary colter the heel of the sod plow, extended downward and sloping backward for cutting the furrow-slice of the trench plow, in the manner described.

**88,794. BENJAMIN F. MASTERS,** Middleport, Ill. Plows. Apr. 13, 1869.

Claim. The arrangement and combination of the cutter M, key W, colter C, brace B, and clamps h h', substantially as shown and described.

**91,644. J. W. LEWIS,** Oregon City, Oreg. Roller Cutters for Plows. June 22, 1869.

Claim. A roller-cutter for plows, consisting of a roller, A, arms B B, swivel-joint b, and braces C C', substantially as herein described.

**93,011. G. D. ROWELL,** Menomonee Falls, Wis. Adjustable Mold-Boards and Colters. July 27, 1869.

Claim. A colter and mold-board, consisting of colter A, mold-board B, slots C, and bolts D, substantially as described.

**93,558. JOHN RUNYON,** Marshal Township, and George Ingersoll, Marshall, Mich. Plows. Aug. 10, 1869.

Claim. In combination with a plow, the colter C, having its cutting-end e bent to land at a suitable angle, and arranged relatively with the plow, substantially in the manner and for the purpose set forth.

**93,636. ROBERT NEWTON,** Jerseyville, Ill. Rolling-Cutters for Plows. Aug. 10, 1869.

Claim. In a revolving cutter the wooden bushing D, substantially as described, and for the purpose set forth.

**93,888. DAVID W. HUGHES,** Palmyra, Mo. Attaching Plow-Colters. Aug. 17, 1869.

Claim. 1. Providing the hubs of the colter or wheel B with conical journals e, and bearings b, as and for the purpose described.

2. In combination with the conical journals e, the lock-plate d, constructed and operating substantially as described.

3. The hexagonal sleeve e, as and for the purpose described.

**95,194. EDWIN A. CHUBB,** Ionia, Mich. Plow-Wheels. Sep. 28, 1869.

Claim. 1. The slotted shank E, provided with slot n and hood m, substantially as described, for the purpose specified.

2. The cap C, in connection with the channel or recess a in the hub B, for the purposes set forth.

3. The arrangement of the wheel A, hub B, cap C, bolt D, shank E, sleeve o, recess d, and hood m, when constructed and operating substantially as herein described.

**96,057. FLAVIUS J. UNDERWOOD.** Rock Island, Ill. Rotary-Colters. Oct. 19, 1869.

Claim. A rotary colter, having a hub, composed of the two parts B, and C, constructed so as to screw together and clasp the blade A, between them, substantially as described.

**96,575. CONRAD FURST,** Chicago, Ill. Colters for Plows. Nov. 9, 1869.

Claim. 1. The arm, or the pendant B, having a curved or angular back, and a cylinder or bearing, C, on the side thereof, in combination with a bent fork, E, H, substantially as and for the purposes specified.

**2.** The combination and arrangement of the adjustable clamp F G, with the beam A, arm B, when provided with a curved or angular back and a side bearing, C stop *a b*, bent wheel-frok E, and wheel D, all constructed and operating substantially as specified.

**101,509. MERRITT RICHARDS,** Princeton, Ill., Revolving Plow-Colters, Apr. 5, 1870.

Claim. The combination and arrangement of the arm B, having constructed within it a slot, into which the post *c* may be fastened and adjusted by means of a screw bolt and nut, with the fork arm H, constructed in one piece and the colter A, in the manner and for the purpose herein described.

**101,739. JOHN S. JOHNSTON,** Rockford, Ill. Vibrating Colters for Plows, Apr. 12, 1870. Antedated Apr. 1, 1870.

Claim. **1.** The combination and arrangement of the slotted plates B B' bolts *a a'*, vibrating plate C, and spring *m*, the whole constructed and operating substantially as an for the purpose set forth.

**2.** The combination of the vibrating plate C, regulating screws *f g*, and colter, E, the whole arranged to operate substantially as described.

**103,148. GEORGE CURKENDALL,** Dixon, Ill. Plow-Colters. May 17, 1870.

Claim. The sleeve A, colter-stem B, eye-bolts E E, slotted plate G, and nuts H H, all constructed and combined, in the manner and for the purpose set forth.

**103,215. ELBRIDGE G. MATTHEWS,** Oakham, Mass. Cutter Stocks for Swivel-Plows. May 17, 1870.

Claim. **1.** The cutter-stock B for supporting the sward-cutter of a plow, when hinged to the plow-beam, substantially as and for the purpose stated.

**2.** The combination with a hinged, or swinging cutter-stock, of the wedge *d* or equivalent device for adjusting the same from right to left, or *vice versa*.

**105,134. THOMAS SHEEHAN,** Dunkirk, N. Y. Plows. July 5, 1870.

Claim. **1.** The arrangement, within an inclined toothed recess, of the plow-beam A, of the slotted toothed bar D and wheel E, said bar being adjusted substantially as and for the purposes herein set forth.

**2.** An eccentric roller, arranged substantially as described, for the purpose of imparting a rocking motion to the plow.

**3.** The combination of the eccentric roller M and adjustable spring-scraper N, arranged as described, and operating substantially as and for the purposes herein set forth.

**106,966. JUSTIN MALANCE SMITH,** Haddam, Conn. Plows. Aug. 30, 1870.

Claim. **1.** The colter G, constructed as

described, with teeth *a a*, and grooves *i i*, and attached to a plow, substantially in the manner and for the purposes herein set forth.

**2.** The arrangement, with the mold-board B, of the wing H, point D with teeth *c c*, and the colter G with teeth *a a*, the grooves *i i*, all substantially as set forth.

**107,033. HORATIO GAIL,** Albion, Mich. Plows. Sep. 6, 1870.

Claim. The laterally-adjustable plate G, serrated disks E and F, and slotted standard B, all constructed and arranged to operate substantially as described.

**8,082. HORATIO GALE,** Albion Mich., assignor, by mense assignments, to the Gale Manufacturing Company, same place. Plows. Patent 107,033. Sep. 6, 1870. Reissued Feb. 12, 1878. Filed Dec. 8, 1877.

Claim. **1.** In a plow, the combination, with the beam of a plate, G, on the under side of the beam, provided with lateral slots S S and suitable bolts, for adjustably securing the said plate to the beam, whereby the alignment of the mold-board and land-side faces of the jointer or small plow, placed in advance of the main plow, may be readily adjusted to a true, equal, and parallel correspondence with said main plow, substantially as described.

**2.** In a plow, an adjusting-plate G, secured to the under side of a plow-beam, in combination with a standard, B, carrying a small plow, and secured to said plate by a bolt, for the purpose of aligning the land-side of the small plow with the main plow, and at the same time adjusting the pitch of the small plow, thereby securing for said small plow both a lateral and vertical adjustment, substantially as set forth.

**3.** The small plow, having slotted standard B, the bolt *b*, and the adjusting-plate G, in combination with the main plow and beam, for the purpose of a vertical adjustment of the small plow to control the depth of the furrow, substantially as herein set forth.

**4.** In combination with the main plow and beam, the small plow, the slotted standard B, and adjusting plate G, and the fast and loose serrated disks E F, substantially as herein set forth.

**107,063. HORACE M. KEITH,** Commerce, Mich. Plows for Cutting Potato Roots. Sep. 6, 1870.

Claim. The cutter G, secured to or forming a part of the plowshare D, constructed and arranged to operate as and for the purpose specified.

**107,298. HENRY M. SKINNER,** Rockford, Ill. Colters. Sep. 13, 1870.

Claim. The specific device described, consisting of the disk A, shaft B, with collar *b*, collar *c*, with orifice *c'*, when the parts are combined and arranged as described, for the purpose set forth.

**108,243. ISAAC EASTWOOD,** Lanark, Ill. Plows. Oct. 11, 1870.

Claim. The adjustable revolving hub or disk C, having projecting radial arms or cutters c, in combination with the adjustable backwardly-inclined colter B', when both are attached to and adjusted upon the beam A of a plow, in the manner and for the purpose shown.

**108,488. HORACE M. KEITH,** Commerce, Mich. Plows. Oct. 18, 1870.

Claim. The edger H and colter I, constructed as described, and arranged upon the side of the plow-beam A, or plow-standard, to be longitudinally adjustable, substantially as and for the purpose set forth.

**108,771. DANIEL DILLENBACK,** Galesburg, Mich. Plow-Jointers. Nov. 1, 1870.

Claim. The combined arrangement of curved standard a, with cutting-blade c, reversible land-side d, and draw-rod n, substantially as described, and for the purpose hereinbefore set forth.

**110,251. JOHN M. LEONARD,** Marshall City, Mich. Adjustable Plow-Jointers. Dec. 20, 1870.

Claim. The combination, in an adjustable plow-jointer, of the point A, the mold-board B, the shank C, and the standard D, wherein the mold-board B is pivoted to the lower end of the shank C by the bolt a, and the shank C is provided with the slot e, and secured to the standard D by the bolt d, and the several parts named are constructed and arranged substantially as described and shown.

**110,283. GEORGE F. PYKET,** Fairfield, Ill. Cutters for Plows. Dec. 20, 1870.

Claim. The cutter G G, having its curved end resting upon the point F of the plow, beveled along its upper edge on one side and alligned with the land-side on the other, as and for the purpose described.

**110,924. JOHN M. LEONARD,** Marshall, Mich. Plows. Jan. 10, 1871.

Claim. The combination with each other, and with a plow, of the jointer-share and the mold-board A B, when employed either with or without the roller D, and constructed, arranged, and connected substantially as and for the purpose set forth.

**111,158. SETH WAY,** La Porte, Ind. Plow-Colters. Jan. 24, 1871.

Claim. An elliptic spindle, constructed, combined, and arranged in all its parts as herein set forth, when attached to a colter for plows.

**111,244. JOSEPH PINKHAM,** New Market, N. H. Plows. Jan. 24, 1871.

Claim. 1. The frame A', with adjusting-screws d" d" d" d", combined with the beam A, pivoted at a, substantially as and for the purpose described.

2. The colter B, with its projecting lip b' inserted into the slot or mortise in the point of the share, and the yoke b" fastened to the standard of the plow either by the bolt b or the bolts and bar b<sup>3</sup>, substantially as and for the purpose described.

**111,786. ANDREW J. SPICER,** Galesburg, Mich. Prairie-Plow-Jointers. Feb. 14, 1871.

Claim. The semicircular colter for cutting loose a riband of turf from the land-side of the furrow, being turned in the manner and for the purpose set forth and described.

**114,822. HORACE S. HOXIE,** Raisin Centre, Mich. Plow-Colters. May 16, 1871.

Claim. 1. The share a, constructed, attached, and operating as and for the purposes specified.

2. The combination of the curved mold-board C with the share a, when each is constructed as described and attached to a colter-bar, as and for the purposes set forth.

**115,013. JOHN W. BAKER,** Elkton, Md. Root-Cutters for Plows. May 23, 1871.

Claim. The sickle-shaped opening, I, when combined with the revolving cutters B, when constructed in the manner and for the purposes substantially as set forth.

**116,446. JOHN T. HOVIS,** Clintonville, Pa. Plow-Attachments for Cutting Stubble. June 27, 1871.

Claim. The reciprocating cutter a, finger-bar b, pitman d, shaft f, pinion h, crown-wheel i, shaft j, pinion m, and wheel n, arranged, in connection with a plow, substantially as shown and described.

**120,055. DAVID D. GIBSON,** Springville, Iowa. Plow-Colters. Oct. 17, 1871.

Claim. 1. The quadrilateral colter C provided with rings a a, said rings being formed on the ends of small screw-bolts and fastened by nuts on the opposite side of the colter, substantially as and for the purposes herein set forth.

2. In combination with the quadrilateral colter C having rings or eyes a a, as described, the rod b formed on the lower end of the shank D, substantially as and for the purposes herein set forth.

3. In combination with the quadrilateral colter C having rings or eyes a a, and the shank D with rod b, the concave and convex wedges d d', straight wedge m, stirrup f, bar E, rod h, and set-screw k, all constructed and arranged substantially as shown and described, and for the purposes herein set forth.

**120,581. HENRY GALENTINE,** Greece, N. Y. Plow-Wheels. Nov. 7, 1871.

Claim. 1. In combination with the wheel A, the bushing b secured in the former by means of the lug c locking against the inclined

face of the wheel-hub, substantially in the manner set forth.

**2.** A wheel and hanger combining in their construction the following instrumentalities, viz.: The tapering bushing *b* secured in the wheel substantially as set forth, and the sleeve *d* detachable from the fixed stud *i* and prevented from revolving thereon, for the purposes set forth.

**120,839. GEORGE TRUMP,** Second Fork, Pa., assignor to himself and George William Huntley, same place. Combined Root-Cutters and Shovel-Plows. Nov. 14, 1871.

Claim. The combination of the root-cutters *K K* with the beam *B* and adjustable rod *E*, when the rod *E* is attached to the curved end of the beam and to the cutters *K* or plow *J*, as described, for the purposes set forth.

**121,382. HORACE M. KEITH,** Commerce, Mich. Plows. Nov. 28, 1871. Antedated Nov. 17, 1871.

Claim. As an improvement upon my former patent dated Oct. 18, 1870, the standard *B* with vertically-slotted arm *b*, in combination with the concave edger *A* having elongated bolt-holes *a a*, and washer *c*, substantially as and for the purpose set forth.

**121,676. JUSTIN MALANCEN SMITH,** Haddam Neck, Conn. Plows. Dec. 5, 1871.

Claim. **1.** The combination of the share, provided with the downwardly-convex cutting-edge and concave upper surface, with the convex mold-board, as and for the purpose specified.

**2.** The plow-share having the downwardly-convex cutting-edges and the concave upper surface at and above the said cutting-edge, but changing to a flat surface, or thereabout, at the junction with the mold-board, substantially as specified.

**3.** The improved colter, having self-sharpening teeth formed by grooves *F*, alternating on opposite sides of the same, as specified.

**122,582. JOHN DODGE,** Adrian, Mich., assignor to himself and James Farrer, same place. Plows. Jan. 9, 1872.

Claim. The box *B B'*, constructed with the groove *b b'*, in combination with the flanges *c* and *d* formed on the detachable spindle or axle *C*, and wheel *D* for attaching the same to the standard *A*, said spindle projecting from the standard, and the wheel rotating thereon, all substantially as herein shown and described, for the purpose set forth.

**123,838. JOSEPH PINKHAM,** New Market, N. H. Plow-Colters. Feb. 20, 1872.

Claim. My improved colter, constructed with the deflecting web and wing formed and arranged with the shank, as set forth and represented.

**126,655. BEERIE W. TUTTLE,** Galena, Ill. Plow-Colters. May 14, 1872.

Claim. A colter-wheel composed of a disk, *D*, having the plano-convex segments *D'* secured thereto by the countersunk bolts *b*, substantially as described.

**126,656. BEERIE W. TUTTLE,** Galena, Ill. Plows. May 14, 1872.

Claim. The construction and arrangement with relation to the plow-beam *A*, of the angular brace *B* carrying the wheel *E*, constructed as described, for the purpose specified.

**127,613. MADISON W. LANE,** Hillsborough, Ohio, assignor of two-thirds of his right to Wm. Dill and Wm. Dill, Jr., same place. Plows. June 4, 1872.

Claim. The stalk and stubble-cutting attachment to plow-beams said attachment consisting of the cutting-blade *B*, the annular plate *C*, and the radial cutting-arms *D D*, combined with each other substantially as and for the purpose herein set forth.

**127,734. LEVI C. BRISTOL,** Holly, Mich. Plow-Wheels. June 11, 1872.

Claim. The combination and arrangement of the standard *a*, the wheel *b*, the axle *g*, the dust-cap *c*, the pin *d*, and the nut and screw *h*, substantially as and for the purposes hereinbefore set forth.

**130,292. LEWIS GIBBS,** Canton, Ohio, assignor to himself, John R. Bucher, and William A. Wikidal, same place. Plows. Aug. 6, 1872.

A clamping-bolt with inclined head, with an elbow-colter having the arm beveled on both edges, and a standard having an overhanging beveled lip, the several parts being arranged so that the colter can be firmly clamped between the beveled lip of the standard and the inclined bolt-head.

Claim. **1.** The standard *A*, when constructed with the overhanging colter-lug *B* and inclined nut-seat *K*, substantially as and for the purpose specified.

**2.** The combination of the share *E* with the slot *e*, elbow-colter *F G* with arm *G* having the beveled edges *g g*, standard *A* with overhanging lug *B* and inclined nut-face *K*, and clamping-bolt *I* with beveled head *i*, the several parts being constructed and arranged substantially as specified.

**5,421. LEWIS GIBBS,** Canton, Ohio, assignor to himself, John R. Bucher, and William A. Wikidal. Plows. Patent No. 130,292, dated Aug. 6, 1872. Reissued May 20, 1873. Filed Mar. 15, 1873.

The standard of the plow has a seat for the nut of a diagonal bolt, the head of which presents an acute angle, thus grasping one side of the colter-arm, the opposite edge of the arm being embraced in an angular seat.

Claim. **1.** A plow-standard having on its inner side the enlargement or projection *K*

provided with an upward diagonal bolt-hole, its upper side forming a seat for the bolt-nut, substantially as specified.

**2.** The bolt I with the hook-shaped head i at its lower end, forming, with the lug B of the standard, a dovetailed depression for the reception of the colter-arm, substantially as shown and described.

**3.** The standard A, when constructed with the overhanging colter-lug B and inclined nut-seat K, substantially as and for the purpose specified.

**130,697. MANLOVE BUTLER,** Vernon, Ind. Plows. Aug. 20, 1872.

Claim. In a plow, a share A, and colter C, arranged some distance in advance of the mold-board B, which reaches with its bottom edge b to the bottom of the furrow, substantially as specified.

**130,751. JOHN RUNYON,** Marshall Township, Mich. Plows. Aug. 20, 1872.

The blade of my improved colter consists of two flat and somewhat triangular-shaped plate sections, constructed in one piece, and bolted to the bar C, said bar being bolted at a suitable point to the side of the plow-beam by a gripe.

Claim. A colter-blade consisting of the plate A B, made substantially in the form shown, and comprising a cutting portion, A, and clearing-wing B, both of which are plane surfaces lying at an angle with each other, in combination with the curved and twisted shank C c, arranged as shown with relation to the plow, whereby the furrow-slice is not turned over, but compacted in its adherence to the "land," and remains unbroken, substantially as set forth.

**131,309. HENRY M. SKINNER,** Rockford, Ill. Plows. Sep. 10, 1872.

The circular cutter is held in place by flanges upon each side, secured by rivets projecting from one flange and passing through the cutter.

Claim. The herein-described revolving colter, consisting of the part A having the flange a<sup>1</sup>, mounted centrally of the sleeve a a<sup>2</sup>, the part B, and the blade C, these members being secured to each other by means of pins or rivets, as described, and adapted to rotate upon a stationary axle, substantially as and for the purpose set forth.

**132,406. CHESTER NASH,** Bacon, Ill. Plows. Oct. 22, 1872.

Claim. **1.** The bracket B provided with the notches or flutings a b, in combination with the screw-staple C for attaching the colter to the plow-beam and adjusting it thereon, substantially as set forth.

**2.** The combination of bracket B, having the arm c provided with flanges f f' and slot g, the box H, the eye-bolt I, and the shank G provided with projections i, substantially as described.

**136,179. MORTON POTTER,** Mendon, Mich. Plow-Wheels. Feb. 25, 1873.

The wheel is held in position by a divided box inclosing a grooved axle or stud. Dirt is prevented from coming in contact with the bearing surfaces.

Claim. The combination of the grooved axle, the independent boxes, and the hub with the plate D and standard E, as described, for the purpose set forth.

**136,257. JAMES R. NICHOLS,** Bastrop, Tex. Plows. Feb. 25, 1873.

Claim. The plow-cutter E having bend e' at one end, sharpened at the other, and perforated at different points, as described, to adapt it to be used with a sweep or plow, in the manner described.

**136,647. RALPH EMERSON,** Rockford, Ill. Colters. Mar. 11, 1873.

A revolving colter is swiveled to a reversible standard, thus giving more or less land to the furrow.

Claim. **1.** The standard D, constructed as described, in combination with the yoke C, wheel B, and key e, substantially as and for the purpose herein specified.

**2.** The yoke C, constructed as described, and section b, forming the back, in combination with a standard, D, and wheel B, substantially as and for the purpose described.

**141,675. CHARLES H. THOMAS,** Cassville, N. Y. Colter-Clasps. Aug. 12, 1873.

Filed Mar. 17, 1873.

The colter-clasp is pivoted loosely on the bolt, which is kept in rigid position by a partial thread which screws firmly into the beam. The angle of the clasp may be changed by moving the wedge-blocks.

Claim. In connection with a plow-beam, the combination of the band a, partial thread-bolt b, blocks j j', and perforated colter g, all constructed and operating as and for the purposes set forth.

**142,310. EDWARD WIARD,** Louisville, Ky., assignor to Benjamin F. Avery, same place. Plow-Colters. Aug. 26, 1873. Filed June 14, 1873.

The clamp is formed with curved projections i i, so as to permit only a limited vibration of the colter.

Claim. **1.** The laterally-vibrating swiveling-clamp C, perforated, as described, for receiving the flattened end of the standard A below the shoulder r, for the purpose specified.

**2.** An open circular adjustable colter, B, constructed substantially as described.

**147,629. HORATIO GALE,** Albion, Mich. Plow-Jointers. Feb. 17, 1874. Filed Dec. 2, 1873.

A horizontal curved arm connects the jointer to the standard, upon which it is adjustable by means of serrations, a vertical slot, and bolt.

Claim. 1. In combination with a serrated standard, A, the curved arm C, carrying the jointer D, substantially as and for the purposes set forth.

2. The combination with a plow standard, of the jointer D, having arm C, and vertically adjustable upon said standard, substantially as described.

**6,824. HORATIO GALE,** Albion, Mich., assignor to the Gale Manufacturing Company, Plow Jointers. Patent No. 147,629, dated Feb. 17, 1874. Reissued Dec. 28, 1875. Filed Dec. 8, 1875.

A horizontal curved arm connects the jointer to the plow-standard.

Claim. 1. In combination with the standard of a plow, a horizontally-projecting arm carrying a jointer, for the purposes set forth.

2. In combination with a serrated standard, A, the curved arm C, carrying the jointer D, substantially as and for the purposes set forth.

3. the combination, with a plow-standard, of the jointer D, having arm C, and vertically adjustable upon said standard, substantially as described.

**148,915. JAMES ARMSTRONG and GEORGE ARMSTRONG,** Elmira, Ill. Plow-Colters. Mar. 24, 1874. Filed Dec. 22, 1873.

The colter is operated by levers, both of which are attached to a casting which is secured to the plow-beam by bolts passing through slots, which gives lateral adjustability. The toothed colter-bar slides in guides formed on this casting, which has also a notched edge, forming a ratchet for the lever pawl.

Claim. 1. The casting B, provided with notched edge b, guides d'd', and a slotted base, c', substantially as shown and described, for readily adjusting the colter.

2. The subject-matter of the foregoing claim, in combination with the segmental lever J K and colter F & G, substantially as shown and described.

**152,887. THEODORE L. WEBSTER,** Brooklyn, N. Y. Plows. July 7, 1874. Filed June 8, 1874.

The colter is beveled only on the furrow side. The tendency to run to land is checked by a flanged guide-wheel, the tread of which is on the land, and the flange dips into the furrow. Supporting-wheels are also adjustably secured to the land side of the beam.

Claim. The described combination, in a plow, of the cutter beveled only on one side, and the flanged guide wheel, arranged and operating together substantially as shown and set forth.

**153,489. DAVID JONES,** Steeleville, Pa. Plow-Colters. July 28, 1874. Filed Mar. 6, 1874.

The edge of the colter is beveled only on the land side, and the point is curved to land.

It is secured by a horizontal arm to the land side.

Claim. As a new article of manufacture, a colter secured to the land-side of a plow by a horizontal arm extending backward in a line with the lower half of the blade, and having its cutting-edge beveled only on the outside and its lower point curved landward, as shown and described.

**153,620. O. M. SHEMWELL,** Greenville, N. C. Cultivators. July 28, 1874. Filed June 10, 1874.

Claim. The combination with the gage and fender-wheel, having a vertical and a horizontal adjustment, of the colter attached to the vertical standard, carrying the gage-wheel and projecting in front of the latter, whereby said wheel and colter are capable of a simultaneous vertical and horizontal adjustment, substantially as herein shown and described.

**154,182. DON CARLOS MATTESON and TRUMAN P. WILLIAMSON,** Stockton, Cal. Gage-Wheels for Gang-Plows and Cultivators. Aug. 18, 1874. Filed Feb. 10, 1874.

The bearing-wheel has a recess in the hub, which receives an arm from a pipe-box, to which it is attached by a single bolt, thus enabling the pipe-box to be removed and renewed when worn.

Claim. The recessed wheel A, with the box D, having the arm E and securing bolt, as described.

**156,427. W. S. LAWRENCE,** Kalamazoo, Mich., assignor of one-half his right to L. C. Chapin, same place. Plow-Wheels. Nov. 3, 1874. Filed Sep. 17, 1874.

The arm-plate which receives the wheel-hub, has a concavity to receive the convex end of the hub. The bolts pass through slots, so that the set of the wheel may be varied in respect to the line of draft.

Claim. The plate F and hub G, provided with convex and concave surfaces for attaching a plow-wheel, as described.

**158,552. ALANSON P. WEBBER,** Saratoga, Ill. Colters. Jan. 5, 1875. Filed Oct. 3, 1874.

The shaft of the colter has enlarged ends, which have bearings in blocks attached to main standard, the latter being slotted to the bottom under the shaft.

Claim. 1. The fork A, having the lower portion cut away, in combination with the parts D, furnishing bearings for the colter-shaft upon the outside of the fork, as and for the purpose herein specified.

2. The interposed plate E, in combination with the fork A and bearings D, for excluding the dirt and forming an oil-cup, substantially as described.

**160,309. ALBERT M. DAVIS,** Jerseyville, Ill. Colters. Mar. 2, 1875. Filed Nov. 12, 1874.

A grooved roller and grooved block to limit vibration of colter.

Claim. 1. In combination with the revolving colter, the grooved roller *a*, as and for the purpose described.

2. In combination with the colter, the grooved roller *a* and grooved-block *c*, as and for the purpose described.

**161,193. DAVID ALLEN,** Allegan, Mich., assignor to John M. Heath, same place. Plow Wheels. Mar. 23, 1875. Filed June 18, 1874.

The wheel-spindle is rigid with the standard, and has grooves on outer end, into which fits a spur of the sleeve, to prevent the latter from turning on the spindle. A flange covers the inner end of the hub, and a cap the outer end, leaving the wearing joints entirely protected.

Claim. In combination with the curved and slotted standard *B*, with the flange *C* and recessed arm *D* rigidly attached thereto, the chill *E*, extending partially through the hub, and having spur *d*, wheel-hub *F*, and cap *G*, attached to, and revolving with, the hub, substantially as and for the purposes herein set forth.

**163,563. JOHN P. ZELLER,** South Bend, Ind. Plows. May 18, 1875. Filed Jan. 20, 1875.

The front section of the mold-board is detachable, and secured by a wing, which laps by the standard on the land-side. To its lower angle is fitted the share, secured by a hook and bolt.

Claim. In a plow, the combination of the plow-point *D*, provided with lug *b*, and the colter *E*, provided with the wing *G*, the point and colter being constructed, as described, of separate pieces, and detachable independently of each other, substantially as herein set forth.

**165,451. WM. S. LAWRENCE,** Kalamazoo, Mich., assignor of one-half his right to Lebeus C. Chapin, same place. Plows. July 13, 1875. Filed Sep. 27, 1874.

A plate triangular in cross-section forms the colter of the plow, or front extension of both mold-board and land-side. A long upward extension curves over the furrow to clear the plow.

Claim. 1. The plow-colter *I*, forming the forward extension of the mold-board and land-side, and having its top extended up and curved over the mold-board beyond the plow-standard, forming a clearer to carry the straw, &c., under the furrow as specified.

2. The plow-standard *C*, extending up straight to form an attachment and support for the colter, and having an offset carrying the top of the standard back under the plow-beam, in combination with the plate *K* of the colter as specified and shown.

**167,256. JOHN S. JOHNSTON,** Rockford, Ill. Colter-Attachments. Aug. 31, 1875. Filed June 26, 1875.

Devices for adjusting and stop for limiting the motion of colters.

Claim. 1. The clutch-block *F*, clutch-arms *I*, and colter *M*, combined with the connecting-piece *D*, substantially as specified.

2. The adjusting guard *K K'*, combined with the clutch and the connecting-piece *D*, substantially as specified.

3. The clutch-bars *I*, colter *M*, clutch-block *F*, and the connecting piece *D*, combined with the rod *B*, attached to a plow-beam, substantially as specified.

**168,540. GILBERT C. LYON,** Clarinda, Iowa. Colters. Oct. 19, 1875. Filed June 12, 1875.

A rolling-colter with a spring-arm from the rear.

Claim. A plow-attachment consisting of the combination of the rolling-colter *e* and the adjustable spring-bar *a*, with oblong guide-loop *c*, clamp *a'*, and plow-beam, substantially as shown and described.

**171,692. ANDREW MUIR,** Sparta, Ill. Colters. Jan. 4, 1876. Filed Oct. 8, 1875.

Devises to adapt the colter-clamp to plow-beams of various sizes.

Claim. The plate *A*, provided with parallel vertical slots *a'*, having notches *c'* located opposite or in pairs, and the colter-bearings *B B*, in combination with bolts *E E*, as shown and described, for the purpose specified.

**172,872. SAMUEL T. FERGUSON,** Minneapolis, Minn. Colters. Feb. 1, 1876. Filed Oct. 6, 1875.

Socket for colter-standard with a horizontal slotted arm, capable of both adjustments.

Claim. In a caster-colter, the sleeve *A*, provided with the thumb-screw *z*, and having the slotted horizontal arm *B*, in combination with the yoke *a*, provided with the screws and nuts *c c'*, substantially as and for the purpose set forth.

**8,038. SAM T. FERGUSON,** Minneapolis, Minn. Colters. Patent 172,872. Feb. 1, 1876. Reissued Jan. 15, 1878. Filed Dec. 29, 1877.

Claim. In a caster-colter, the sleeve *A*, provided with the thumb-screw *z*, and having the slotted horizontal arm *B*, in combination with the yoke *a*, provided with the screws and nuts *c c'*, substantially as and for the purpose set forth.

**174,736. KINYAN W. MANWARING,** Council Bluffs, Iowa. Colters. Mar. 14, 1876. Filed Jan. 22, 1876.

A colter mounted in a collar, and secured on a shaft by right and left screws.

Claim. The combination with the roller colter *A*, of right and left screw-shaft *B*, screw-

collars C, and yoke D, arranged substantially as and for the purpose specified.

**175,963. A. C. GABEL,** Yorkville, Ill. Plow Attachments. Apr. 11, 1876. Filed Mar. 4, 1876.

The attachment occupies the place of the ordinary colter, with draft-rod attached to front end of beam.

Claim. As an attachment to a plow, the diagonal share B and colter C, secured to a standard, A in combination with the rod E, its link f, loop g', and pin h, made adjustable, substantially as described.

**178,443. D. W. HUGHES,** St. Louis, Mo. Rolling-Colters. June 6, 1876. Filed Mar. 4, 1876.

A rolling-colter with a wooden lining, in the outer edges of which are grooves, in which stationary dust-checks are secured.

Claim. 1. The dust-checks D D, provided with ears or flanges d d, in combination with the shoulders b on the arms of the yoke E, for the purposes herein set forth.

2. The combination of the colter-hub A, interior or lining C, with concentric grooves a at its ends, the dust-checks D, with flanges d, yoke E, with shoulders b, axle G, and nut H, all substantially as and for the purpose set forth.

**178,978. GEO. THOMSON and JOHN THOMSON,** Woodstock, Canada, assignor or one-third their right to John E. Thacher, same place. Land-Skimmers for Plows. June 20, 1876. Filed Apr. 4, 1876.

A "jointer" or "skimmer" and a weed-turner adjustable on the colter.

Claim. The combination, substantially as specified, of the colter, the land-skimmer, and the anti-choker g.

**179,699. JACOB HECKENDORN,** Ann Arbor, Mich. Plows. July 11, 1876. Filed Apr. 18, 1876.

Claim. 1. In plows, an arm whose rear end is rigidly attached to standard, and the front end adapted to receive a skiver, colter, or jointer adjustably, as shown and described.

2. The skiver L, connected with standard B by shank K and arm J, the former adjustable on the latter, and both constructed as shown and described.

**185,686. S. M. LOVELL,** Shady Grove, Va. Turf and Grubbing Colters. Dec. 26, 1876. Filed Sep. 22, 1876.

A grubbing-colter having a socket or groove in its front side to hold a root-cutting knife-colter.

Claim. A grubber having colter D and knife E, the colter end being curved and extended beyond the knife, while the latter is seated on and in a front groove of the colter, as shown and described.

**187,106. W. H. COLLETT,** Jackson, Tenn. Colter Plows. Feb. 6, 1877. Filed June 20, 1876.

Claim. The combination of the beam A, having the V-shaped slot a, the colter C, and metallic holders B B, having open-ended slot at each end, the set-screws d d above and below on opposite sides, the bolts D, and nuts f, all constructed substantially as and for the purposes herein set forth.

**187,950. T. WIARD,** East Avon, assignor or by mere assignments, to Wiard Plow Company, Batavia, N. Y. Plows. Feb. 27, 1877. Filed Oct. 1876.

A bent shank to the wheel-spindle, with devices for holding in position and for reversing to cause the wheel to run to or from land.

Claim. 1. The combination, with the wheel-standard C, provided with double-conical opening l of the arbor J, having shank j and conical collar k', and conical washer m, substantially as and for the purpose hereinbefore set forth.

2. The combination with the wheel-standard C, provided with double-conical opening l and recesses p p', of the arbor J, having shank j and conical collar k', and conical washer m, provided with lug o, substantially as and for the purpose hereinbefore set forth.

**188,019. W. S. LAWRENCE,** Kalamazoo, Mich. Plows. Mar. 6, 1877. Filed Jan 29, 1877.

The colter or jointer raised or lowered by sliding in the inclined groove of the standard.

Claim. 1. The standard C, provided with a recess or groove, c', upon the land-side thereof, inclined downward from front to rear of the standard, and adapted to receive a colter or jointer arm, substantially as and for the purpose set forth.

2. The standard C, having an inclined recess or groove, c', upon the land-side thereof, in combination with the adjustable bent arm D, carrying upon its outer end a colter or jointer, substantially as and for the purpose set forth.

**188,352. J. GENZLY,** Victor, Iowa. Sod-Cutters. Mar. 13, 1877. Filed Aug. 9, 1876.

A cutter bolted to the outside of the land-side,

Claim. The combination, with the land-side A, having the notch-seat e formed in its exterior face, of the sod-shear C, having its base bolted to the land-side, and its point bent inward and seated in the said notch-seat substantially as specified.

**188,750. G. MOORE,** Moline, Ill., assignor to Deere & Co., same place. Colter-Journals. Mar. 27, 1877. Filed Jan. 13, 1877.

The colter-bosses tapered and extended to form journals, which revolve on the center bolt, and also within boxes carried by the arms or hangers, which may be drawn up by the center bolt to compensate for the wear.

Claim. 1. The plow-colter bosses C, hav-

ing frusto-conical ends  $c$ , arranged to operate with similarly-shaped apposed recesses in the arms  $A'$ , of the colter yoke A, substantially as described, and for the purpose specified.

2. The plow colter bosses C, having frusto-conical ends  $c$ , arranged to operate with similarly-shaped apposed recesses in the arms  $A'$ , and with the tightening-bolt E, substantially as described, and for the purpose specified.

3. The plow colter bosses C, having frusto-conical ends  $c$ , arranged to operate with similarly-shaped recesses in the arms  $A'$ , and having a portion of their central aperture  $C''$  fitted and journaled on the bolt E, which bolt E serves at the same time as tightening bolt, substantially as and for the purpose specified.

4. The substitutive journal boxes D, arranged to operate with the bosses C, arms  $A'$ , and bolt E, substantially as described, and for the purpose specified.

5. A plow-colter, B, having bosses C with tapering ends, which are formed into journals, and a central opening for an axial bolt, E, substantially and for the purpose specified.

6. A wheel or colter, B, having bosses C, the ends of which are formed into journals, combined to operate with bearings in the arms  $A'$ , substantially and for the purpose specified.

**189,607. WM. CLORE,** Rising Sun, Ind. Plows. Apr. 17, 1877. Filed Feb. 3, 1877.

A plate let into the land side of the plow extends forward as a colter.

Claim. The combination of a one-piece standard and land-side, C E, having inclined recess  $c'$ , share F, and colter G G', the latter having a forward projection, g, that rests upon the share, as shown and described.

**190,510. J. OLIVER,** South Bend, Ind. Colter or Jointer Supporters for Plows. May 8, 1877. Filed Apr. 18, 1877.

Claim. 1. In combination with a plow, a colter or jointer supporter adjustably secured to the plow-beam and rigidly connected to the plow-standard, substantially as and for the purpose described.

2. In combination with a plow, a colter or jointer supporter having an arm or brace rigidly secured to the plow-standard, and provided with a slotted plate by which, through the medium of a bolt which freely passes through the slot of said plate, the supporter is secured to the plow-beam and which slot permits a lateral adjustment of the beam relative to the supporter, substantially as described.

3. A colter or jointer supporter consisting of holder, D, provided with a slot or openings to permit a vertical adjustment of the colter or jointer, a slotted plate, E, and a brace, C substantially as described.

4. A colter or jointer supporter, consisting of a holder, D, provided with a slot or openings to permit the vertical adjustment of the

colter or jointer, a slotted plate, E, adjustably secured to the plow-beam, and a brace, C, rigidly connected with the plow-standard, substantially as described.

**190,672. JAY DENSMORE,** Tonawanda, N. Y. Plow-Jointers. May 15, 1877. Filed Mar. 7, 1877.

A pointer clamped to the rear of a colter, having a cutting-share with its outward end curved upward, and a rearward-extending turning-finger.

Claim. 1. In combination with the colter or upright piece C, the jointer D, constructed with the upright post  $a$ , the curved cutting-share  $b$ , and the long elevating-bar  $c$ , substantially as hereinbefore specified.

2. In combination with the colter C and jointer D  $a b c$ , the lips  $d d$ , the band  $e$ , bolt  $f$ , and key  $g$ , for the purpose of attaching and adjusting the jointer, substantially as spcified.

**191,469. FRIEDRICH RICK,** Detroit, Mich. Plows. May 29, 1877. Filed Apr. 26, 1877.

The horizontal shank of the cutter extends into the plow, and receives a traveling-screw, which moves the cutter forward or back.

Claim. In combination with the slotted colter, the screw  $n$ , that is swiveled to the side of the handle, and made to move the colter back and forth, substantially as described.

**191,622. C. R. THOMPSON,** Lebanon, Ky. Plow Colters. June 5, 1877. Filed Apr. 30, 1877.

Two or more colters or jointers, with cutting-standards and triangular horizontal cutters extending on one side only, and designed to cut the turf loose in narrow strips without removing it from its position.

Claim. The combination, with a plow, of two or more colters, B, provided with horizontal triangular cutters  $b'$  at their lower ends, and with the same beam A, substantially as herein shown and described.

**192,538. GEO. K. SMITH,** Freeport, Ill. Combined Colters and Jointers. June 26, 1877. Filed June 11, 1877.

A reversible jointer and colter attached to one standard. The latter may be removed and the jointer used alone, set at different angles upon the beam.

Claim. The combination of the plow-beam A, standard B, jointer E, and removable colter F, substantially as shown and described.

**193,102. JOHN W. WOOD,** Bonham, Tex. Plows. July 17, 1877. Filed May 1, 1877.

Claim. 1. In combination with a mold-board plow, a grooved wheel, D, arranged to straddle or embrace the cutting edge of the colter or mold-board, as shown.

2. In combination with the mold-board C, having the cutting edge or colter, the grooved

wheel, D, sustained by the adjustable bracket E, as shown.

**194,116. G. V. H. WHITBECK,** Phelps, N. Y. Attaching Colters to Plows. Aug. 14, 1877. Filed Apr. 5, 1877.

Claim. The notched and recessed disk, D, having rigidly attached thereto, and forming part of the same, the double ended bolt E F, arranged in combination with the slotted jointer-plow or colter B, and plow-beam A, substantially as and for the purposes herein set forth and described.

**194,665. A. H. FARMER,** Oak Level, Va. Colters and Plow-Stocks. Aug. 28, 1877. Filed May 14, 1877.

Claim. In combination with the stock B having the ears f at the angle thereof, the colter A having a convex back, and the right angular arm projecting forward of the cutting edge, as shown and described, for the purpose specified.

**196,026. WILLIAM S. LAWRENCE,** Kalamazoo, Mich. Plows. Oct. 9, 1877. Filed Aug. 9, 1877.

Jointer or colter arm having its rear end attached to land side, along the inside of which it passes, and which is extended up sufficiently for said attachment. Rear end of said arm vertically adjustable, and jointer attached to forward end of same, adjustable up and down thereon.

Claim. 1. The jointer or colter arm attached at the rear end to the land side, along the inside of which it passes, substantially as and for the purpose set forth.

2. The jointer or colter arm B, in combination with the standard A, provided with a seat in which the said arm rests and is supported, and the land-side C, to which the rear end of the arm is attached, substantially as and for the purpose set forth.

3. The standard A, in combination with the jointer or colter arm B and land-side C, constructed and arranged to cover the joint between the arm and standard, substantially as and for the purpose set forth.

4. The bent arm B, attached at its rear end to the plow so as to be adjustable in a vertical plane, in combination with a jointer attached to the forward end of said arm, and adjustable up and down thereon, substantially as and for the purpose set forth.

**196,160. WILLIAM H. MELLON,** Fern Valley, Iowa. Rotary Cutters and Shields for Plows. Oct. 16 1877. Filed July 13, 1877.

The angular weed-turning plate is attached to the standard of the rolling colter, and held in an angular position in front of the mold-board by a spring. The pitch of both is adjusted by a connecting-rod, lever, and ratchet.

Claim. The combination, with colter wheel

G, of the bent plate L, pivoted in front to standard E, and provided with spring J to press its rear, all constructed, arranged, and operating together as and for the purpose specified.

**196,385. JOHN F. F. PORTER,** Bonnville, Miss., assignor to himself and Henry R. Moores, same place. Fasteners for Colters and Plow Standards. Oct. 23, 1877. Filed June 11, 1877.

Claim. The combination of the slotted plate B, the notched plate C, having its forward end c' bent upward the bolt D, and the hook-rod F, and its nut f', with a plow beam, and with the notched shank of a colter or plow-standard, substantially as herein shown and described.

**197,448. F. R. BEAL and SPENCER CLARK,** Northville, Mich., assignor to Michigan School Furniture Company, same place. Colters or Jointer Arms for Plows. Nov. 27, 1877. Filed May 23, 1877.

Claim. The colter or jointer supporting arm described, consisting of the arm A, having the bolt hole a, for securing the said arm to the side of a plow-standard, the flange b, provided with a slot, extending through one side of the same, the socket d, adapted to inclose the arm of a colter or jointer, and the set-screw h, all constructed and arranged substantially as described and shown.

**199,937. EBENEZER A. SANDERS,** Rockford, Ill. Rolling Cutters. Feb. 5, 1878. Filed Nov. 17, 1877.

Claim. 1. The combination, with the arms of the yoke C, having spherical journal-bearings secured thereto, of the disks B, each having the shaft a, and spherical bearing formed solid therewith, substantially as set forth.

2. The combination, with the arms of the yoke C, and disks B, the latter having shafts a and spherical journals b formed solid therewith, of the two-part bearings c d and screw-staple g, for securing the bearings in place, substantially as set forth.

**200,230. ROBERT B. THOMSON,** Dansville, Mich. Colter-Holders for Plows. Feb. 12, 1878. Filed Nov. 23, 1877.

Claim. The colter-holder H h<sup>1</sup>, constructed with the rear flange h<sup>2</sup>, provided with a cross-rib, and the slotted top flange h<sup>3</sup>, in combination with the standard B, having a grooved head, and the beam D, substantially as shown and described.

**200,734. JOHN C. KNOBLOCK and THELUS M. BISSELL,** South Bend, Ind., assignors to St. Joseph Reaper and Machine Company, same place. Plows. Feb. 26, 1878. Filed Jan. 16, 1878.

Claim. 1. The jointer-arm F, provided with a flange, I which projects over the front of the jointer-standard B, for the purposes herein set forth.

**2.** The combination of the perforated standard B with brace C, provided, respectively, with the heads B' and C', and laterally-adjustable on the under side of the plow-beam, the flange h, and the perforated jointer-arm F with flange I, all constructed substantially as and for the purposes herein set forth.

**200,842. JOSHUA PIERPONT,** Bushnell, Ill., assignor to Pierpont & Tuttle, same place. Plow-Colters. Mar. 5, 1878. Filed Dec. 31, 1877.

Tapering false journals are placed upon and turn with the journal proper. The yoke is in two parts, between which is placed packing in the upper socket, so that the two parts may be drawn together to compensate for the wear of the journals.

Claim. **1.** The substitutive journals D, arranged to operate with bosses B B', having projections b, on which the journals D are fixed, and with the colter A, substantially as and for the purpose specified.

**2.** The substitutive tapering journals D, arranged to operate with similarly-shaped opposed bearings in the limbs E' of the yoke E, and seated on the projections b from the bosses B B', substantially as and for the purpose specified.

**3.** The yoke E, made in two parts E' E', adjustable at both ends, in combination with tapering journals D and colter A, substantially as described, and for the purpose specified.

**201,470. EDMUND WANSBROUGH** and WM. W. SPEER, Pittsburgh, Pa., assignors to Alexander Speer & Sons, same place. Plow-Cutters. Mar. 19, 1878. Filed Feb. 5, 1878.

Claim. **1.** The combination, with the cutter-stem formed with a central rib upon one or both of its sides, of the counterpart grooved plate or plates, and mechanism for adjustably clamping the same to a plow-beam in inclination to or from the land, substantially as set forth.

**2.** The combination, with the cutter formed with a central rib upon both its sides, of the two clamping-plates made with counterpart grooves, the clamp, and screw-bolts, or their equivalent, said inner clamping-plate having a rocking bearing, and provided with eye formations at its diagonally-opposite ends, substantially as set forth.

**8,888. EDMUND WANSBROUGH** and WILLIAM W. SPEER, Pittsburgh, Pa., assignors to Alexander Speer & Sons. Plow-Cutters. Patent 201,470, dated Mar. 19, 1878. Reissued Sep. 9, 1879. Filed July 11, 1879.

Claim. **1.** In a plow-beam attachment, the combination, with an inner plate and an outer plate, of a stem secured between the two, and a beam-clamp which fastens the plates together, one or both sides of said stem being provided

with a rib, which fits in a counterpart groove formed in said plate or plates, substantially as set forth.

**2.** In a plow-beam attachment, the combination, with a stem having a central rib formed on one or both of its sides, of a counterpart grooved plate or plates, and mechanism which adjustably clamps the frame to a plow-beam in inclination to or from the land, substantially as set forth.

**202,624. JOHN AUGSPURGER,** Trenton, Ohio. Colters for Plows. Apr. 23, 1878. Filed Nov. 16, 1877.

Claim. The caster-hub B, having the lug provided with recesses C C, in combination with wrought metal straps E, for supporting rotary cutter F, in the manner substantially as described.

**203,668. CHAS. E. STELLER,** Milwaukee, Wis. Colters. May 14, 1878. Filed Jan. 28, 1878.

The colter-shank has two sets of grooves on each side, of varying widths. A block with a tooth to fit each set of grooves adjusts the pitch of the shank. Colter-yoke in two parts, each having a cap and stud, which meet in the colter and form its axle.

Claim. **1.** In rotary caster-colters for plows, the shank C, provided with adjusting grooves D and E on each of its sides, substantially as and for the purpose specified.

**2.** The block H, provided with lugs F and G, in combination with the shank C, substantially as and for the purpose specified.

**3.** The yoke M, constructed in two parts, provided with caps Q, studs S, one of which having its end countersunk, and the other pointed to fit therein, and socket L, for the reception of the shoulder K, in combination with the colter-wheel O and shank C, as secured together by bolt N, all substantially as and for the purpose specified.

**206,334. EDWIN JARRELL,** Thorntown, Ind., assignor of one-half his right to Jas. T. McKim, same place. Plow-Colters. July 23, 1878. Filed June 15, 1878.

Claim. The concavo-convex or spoon-shaped colter E, with oval cutting-edge, adapted to turn a shallow furrow on the land-side beyond the plane of the furrow, having adjusting-shank D, provided on its rear edge with notches d, combined with the beam A, clamp C C', and wedge f, as specified.

**206,818. JAMES OXFORD,** Kalamazoo, Mich. Plow-Colters. Aug. 6, 1878. Filed June 29, 1878.

The jointer-arm adjustably upon the plow-standard and also upon the jointer.

Claim. The combination of the adjustable colter-beam B, having roughened surfaces on opposite sides, as shown, and slots to secure

adjustment, with the slotted braces D E, curved colter-arm e, headed bolt e', and standard A a', as and for the purpose set forth.

**207,352. SAMUEL HATHAWAY,**  
Collins, Ark. Colters. Aug. 27, 1878.  
Filed June 13, 1878.

A section of the colter-socket removable, allowing the bolt to clamp the colter tightly.

Claim. In combination, the plate A and socket B, provided with the key C and the vertically-adjustable colter F, having bolt E and nut D, substantially as and for the purpose set forth.

**207,451. MANFRED D. SLOCUM,**  
Union City, Mich. Jointer-Clamps. Aug. 27, 1878. Filed May 7, 1878.

The three-sided clamp adjusts the jointer to or from land, and also allows the point to be twisted or turned in or out.

Claim. The three-sided clamp or bar D, having its ends slotted and bent angularly to fit upon the top and bottom of the beam A, in combination with the jointer-standard B, bolted to said clamp, and the bolts E F, as and for the purpose specified.

**207,589. ALBERT H. BURLINGAME,** Sparta, Ill. Rolling Colters Sep. 3, 1878. Filed June 14, 1878.

A slotted and serrated plate clamped to a plow-beam, and bolted to a second plate having hinges for the colter-arms and adjustable vertically. Stops limit the horizontal swing of the colter-arms.

Claim. 1. In a rotary colter, the combination of the plates B D, having horizontal serrations b' d', and the bolt C, constructed substantially as shown and described.

2. The combination of the swinging frame A for a rotary colter, the serrated plates B D, clamp-plate F, and bolts C f', substantially as and for the purpose set forth.

3. The combination of the colter-frame A and its check a', the serrated plate B and its check b', the serrated plate D, clamp-plate F, and bolts C f', all constructed and operating substantially as described.

**209,129. WILLIAM McGREGOR,** Rockford, Ill., assignor to N. C. Thompson, same place. Plow-Colters. Oct. 22, 1878. Filed Apr. 18, 1878.

Disks having hubs, which extend laterally to the yoke, taper and otherwise conform to tapering sleeves, which they inclose, and upon which they revolve, said sleeves having square interior openings, and fitted upon a square bolt, which secures the parts together.

Claim. The combination, with the colter and its supporting-yoke, of the square bolt passing through and securing the parts together, the tapering sleeves upon said bolt forming the pivotal surface for the colter, and the disks bolted to the colter and pivoted with hubs, which extend laterally to the yoke and inclose

and revolve upon the said sleeves, substantially as specified.

**209,412. ROBERT B. MITCHELL,** Minneapolis, Kans. Plows. Oct. 29, 1878. Filed Aug. 20, 1878.

Claim. 1. The bar A, provided with a notch in its beveled edge beneath the share C, to receive the flange of the cutter E, substantially as shown and described.

2. The cutter E, provided with a flange upon its lower end, having a slot formed in it to receive the fastening-bolt, in combination with the notched bar A and the share C, substantially as herein shown and described.

**210,047. THOMAS MEIKLE,** Louisville, Ky. Plow-Colters. Nov. 19, 1878. Filed Oct. 21, 1878.

Claim. The colter D, constructed with the shoulder D<sup>2</sup>, engaging the standard, and the flange D<sup>3</sup>, extending rearward over the frog on the mold-board side of the plow, perforated with holes for the bolts d and d', for attaching it to the frog, in combination with the standard and frog of the plow, and so constructed as to form proper joints and inclinations with the point and mold-board, as and for the purpose substantially as set forth.

**210,290. WASHINGTON A. BOLICK, JOHN D. BOLICK, and JOHN T. FAUCETT,** Brighton, Tenn. Plow Attachments. Nov. 26, 1878. Filed Mar. 22, 1878.

Claim. In combination with the beam A and colter D, the plate C, provided with the slots a a', and constructed with the oblique recess or socket-case b and adjusting screw-bolts c c', substantially as shown and described, and for the purpose specified.

**210,588. WILLIAM J. WELLING,** Niles, Mich. Plow-Jointers. Dec. 3, 1878. Filed Nov. 9, 1878.

Claim. 1. In a colter-fastening, the angular plate B', having in its horizontal wing a bolt-hole, on its vertical wing the key-hole slot s and stop-flanges e e', and upon its front and rear edges, respectively, the hook-prong c and catch-spur d, substantially as specified.

2. The combination, with the beam A, standard B, and through-bolt b, of an angular metallic fastening-plate, B', having its horizontal branches i extending over and across the said beam, and provided with a hole for the passage of said bolt, and its vertical branches i' extending down the cheek of the said beam, and provided with a key-hole slot, s, the stop-flanges e e', the hook-prong c, extending across the beam and embracing the front end of the standard-bearing, and the spur d, extending over and bearing upon the flange of said bearing, the colter-shank f, the bolt g, and nut g', all arranged and operating as set forth.

**212,076. WILLIAM H. WILDER.**

Waterport, N. Y. Plow-Wheel Standards. Feb. 4, 1879. Filed Mar. 25, 1879.

Claim. The plate G, having a beveled internal notched bearing, in combination with plate H, provided with an external beveled notched bearing, and the nut-bolt I, substantially as and for the purpose set forth.

**212,209. MARTIN L. GIBBS,** Canton,

Ohio. Plows. Feb. 11, 1879. Filed Nov. 18, 1878.

The construction of the jointer and its bent standard made laterally adjustable upon each other.

Claim. The combination of the sheath F, bent to form the foot f, the jointer G, provided with the slotted bar d, and the bolt e, all substantially as and for the purpose herein set forth.

**212,419. ASAHEL ALDRICH,** Marion,

Iowa. Cutters for Plows. Feb. 18, 1879. Filed Dec. 31, 1878.

The round shank of the colter-standard passes through a box attached to the plow-beam, and through the ends of a yoke which embraces the central part of, and is provided with a lug which enters a recess formed in, said box, whereby the colter is allowed a limited lateral vibration.

Claim. 1. In a plow-colter attachment, the box G, with recess i, in combination with yoke l, with lug h, for the purpose of allowing the colter to accommodate its directions to the movements of the plow, substantially as set forth.

2. The combination of the standard B, with shank D, the box G, with recess i, yoke l, with lug h, and the set screw d, substantially as and for the purposes herein set forth.

3. The standard B, having its upper end formed with a round shank, D, and its lower portion bent at right angles with the end, provided with an enlarged or expanded head, the same being provided with a series of holes arranged on the arc of a circle, in combination with the angular cutter A, box G, yoke l, and beam F, all as and for the purpose set forth.

**212,429. ARTHUR O. BEMENT,** Lansing, Mich. Plow Attachments. Feb. 18, 1879. Filed Dec. 7, 1878.

A block with a hollow or curved bearing-face, for adjusting the jointer laterally, and in order to maintain the jointer, in a true line on an adjustable plow-beam.

Claim. The combination, with the standard A, of the casting B, secured to its lower end, and having groove h and bolt-hole, the jointer D, the plate C, secured to the rear of the jointer, and having rib h and slot e, and the bolt d, constructed and arranged substantially as and for the purpose set forth,

**213,049. JOHN LANE,** Hyde Park, Ill. Wheel-Colters. Mar. 11, 1879. Filed Nov. 4, 1878.

Claim. The wheel colter A, provided with bosses B, having aperture b, fitting closely upon axial bolt C, and concave ends or recesses b', in combination with detachable thimbles D, passing entirely through the yoke arms, and formed with oval or convex ends, adapted to fit the recesses of said bosses, as shown, yoke arms K', and axial bolt C, all constructed to operate as described.

**213,051. GEORGE D. LOOMIS,** Tiffin, Ohio. Plows. Mar. 11, 1879. Filed Dec. 21, 1878.

An annular flange projects on the side of the colter and serves the shield the point of the jointer.

Claim. 1. The combination, with a revolving cutter, adjustably secured to the plow beam of a jointer the point of which is located in the rear of the forward edge of the cutter, said jointer adjustably secured to the plow-beam substantially as set forth.

2. A revolving cutter having a depressed or countersunk surface, in combination with a jointer, whereby grass and debris are prevented from entering between said cutter and jointer, substantially as and for the purposes described.

**213,061. THOMAS PATES,** Alton, Ill., assignor Hapgood & Co., St. Louis, Mo. Wheel Colters. Mar. 11, 1879. Filed Dec. 19, 1878.

Claim. The wheel colter B, provided with bosses C, having aperture C' through which the axial bolt extends, as shown, and cylindrical journal ends c in combination with detachable and reversible boxes D, formed with shouldered recesses d, adapted to fit closely upon the ends of said bosses and embrace the journals c, and having angular extensions K, formed with perforations k, which closely fit the axial bolt and extend into the yoke arms, as shown, and yoke arms A, provided with angular holes P, adapted to fit and hold the extensions K, seated therein, and bolt E, all constructed and arranged to operate substantially as and for the purpose described.

**213,475. CHARLES W. TWIGG,** Finchale, Ind. Plows. Mar. 18, 1879. Filed Dec. 18, 1878.

Claim. The cutter C', having the straight side a, the curved side b, the spur c, and the curved shield g, in combination with the beam A, mold-board B, and share C, with slot e, substantially as shown and described.

**213,622. JOHN CLAYTON,** Brainerd Minn. Plow Colters. Mar. 25, 1879. Filed Oct. 10, 1878.

The axle of the colter is formed with a flaring journal or bearing surface, which fits into a corresponding bearing surface of the hub, and a set screw centers the colter upon its bearings, and allows the parts to be drawn together, to compensate for wear.

Claim. The combination of the axle B, made with a flaring journal or bearing surface the flanged washer or cap C, the hub E, made with a tapering cavity or bearing surface, the clamping plate H, the set screw I, and the nuts J D, with each other and the rotary colter F, for connecting the said colter with its hanger, substantially as herein shown and described.

**214,229. S. JARVIS ADAMS.** Pittsburg, Pa. Hubs for Plow Colters. Apr. 15, 1879. Filed Dec. 19, 1878.

A hollow threaded bolt, having a seat against which a disk or ring plate rests, is screwed into a circular recess formed in one part or half of the colter-hub, whereby the colter blade is clamped between the half hub and ring plate. Plugs fitting within collars of the hub to prevent entrance of dirt, and held stationary by arms extending outward from the hub along the sides of the yoke.

Claim. 1. In a colter hub, the combination of the half hub A, provided with the circular threaded recess b, the ring plate D, and the hollow threaded bolt C, adapted to screw into the recess b and clamp the colter blade between the half hub and ring plate, substantially as described.

2. In combination with the colter hub axle, and yoke, the stationary plugs, fitting within the collars e of the hub, to prevent the entrance of sand or dirt to the bearing, said plugs being provided with the flanges v, against which the ends of the hub work, and the arms or wings w, extending back from the plug up the sides of the yoke, to hold it stationary in the hub, substantially as set forth.

**214,519. HENRY T. NOBLE,** Dixon, Ill. Caster Colters. Apr. 22, 1879. Filed Sept. 14, 1878.

Claim. A colter hub provided with counter sinks a, and the yoke arms A A, provided with countersinks b, in combination with washers c, inserted in said countersinks and extending on both sides of the joints, and bolt D, substantially as and for the purposes set forth.

**514,864. CALVIN ADAMS and S. JARVIS ADAMS,** Pittsburg, Pa. assignors to said S. Jarvis Adams. Plow Colters. Apr. 29, 1879. Filed June 20, 1878.

Claim. The combination of the colter hub B, composed of the two disks b b, having the annular recesses h h formed therein, and the removable bearings i, fitting into said recesses and adapted to extend entirely through the yoke journals, and to clamp the hub upon the blade, and be secured within the yoke by means of the bolt and nut pressing against the removable bearings, substantially as described.

**215,587. GEORGE DODGE,** Kalamazoo, Mich., assignor of one-half his right to Ethan Allen, same place. Colters and Jointers. May 20, 1879. Filed Sep. 3, 1878.

A colter clamp with devices to adjust laterally and to receive beams of different sizes, also to change the pitch and the height of the colter. Set screws to afford a firm bearing at any point of lateral adjustment. A detachable jointer to fit on the colter point, and channeled to bed the edge of the latter.

Claim. 1. In a plow colter attachment, the combination, with a jointer having a recessed side, of a colter fitting in the latter and secured thereto, substantially as set forth.

2. In a plow colter attachment, the combination of an independent colter and jointer, the two being connected together with the back of the jointer point fitting over the working edge of the colter, whereby the latter is prevented from wear when the jointer is in use substantially as set forth.

3. In a plow colter attachment, the combination, with a jointer formed in independent piece and provided with a slotted rear arm, of a colter to which it is secured in longitudinal adjustment by a fastening device engaging with said slotted arm, substantially as set forth.

4. In a plow attachment, the combination with the block A, secured to the vertical side of a plow beam, and formed with the horizontal curved slot k', of a colter bar, J, formed with a vertical slot, k, together with a single bolt, K provided with a nut, and which works in both said slots substantially as set forth.

5. In a plow attachment, the combination with the block A, secured to the vertical side of a plow beam, and a colter bar, J, engaging with the upper body of the same in both horizontal and vertical adjustment, of a transverse metallic strap connected to its lower body and adapted to clamp said colter bar thereto correspondingly to its adjustment at the upper body of the block, substantially as set forth.

6. In a plow attachment, the combination with a block secured to the plow beam, and having its vertical body formed with studs cast on the outer face, respectively, of its two longitudinal side portions, of a metallic clamping strap whose extremities are adapted to have lateral bearing against said studs as the strap binds the colter bar to the block, substantially as set forth.

7. The colter block A, having horizontal curved slot, k', and projecting stud bolts m, cast thereon, and recessed on its inner face to receive the nuts of the set screws G, and provided with the slotted arm B and clamping arm C, substantially as shown and described.

**216,128. ASAHEL ALDRICH,** Marion, Iowa. Colters. June 3, 1879. Filed Apr. 17, 1879.

Colter with entire edge on both sides cutting, and having lateral vibration.

Claim. 1. The colter A, consisting of an elongated piece of steel, its sides being parallel and its ends rounded, with an endless cutting-edge, and reversible end for end and side

for side, substantially as and for the purposes herein shown.

2. The combination of the colter A, provided with coupling b, having a lateral slot therein, with standard B and thumb-screw a, all constructed and arranged to operate substantially as described.

**217,043. PLEASANT A. BAGWELL,**  
Oakland, Ky. Colter-Fasteners. July 1,  
1879. Filed Apr. 21, 1879.

Claim. 1. The within-described device, consisting of colter A, provided with notches a' a', brace B, provided with slot d' and nut e', fastener C, provided with flanges D D, and tooth b', in combination with the plow-beam E, substantially as herein shown and described.

2. The colter-fastener C, with flanges D D and tooth b', substantially as and for the purpose described.

**217,363. FILLMORE GAUNT,** Mullica Hill, N. J. Attaching Colters to Plows. July 8, 1879. Filed Feb. 10, 1879.

Claim. 1. The combination of the standard or upright portion B of a plow-beam, the plates a and b, the laterally-adjustable eye d, the yoke f, having a threaded stem i, and the nut n, as set forth.

2. The combination of the standard or upright portion B of a plow-beam, the plate b and its eye d, the yoke f, its threaded stem i and nut n, and the plate a, having notches x, and a slot m, as set forth.

**218,617. ALBERT H. BURLINGAME,** Sparta, Ill. Hangers for Plow-Colters. Aug. 19, 1879. Filed Mar. 24, 1879.

The shank, adjustable on the beam, ends in a journal pin, on which may turn or be locked a sleeve having projecting ears to receive the bolt which attaches the colter-arm. A slot in the ear of the sleeve allows the colter to be set at different angles, at any of which the head of the set-bolt forms a stop for a limited vibration.

Claim. 1. The combination of the plate A, segment a<sup>1</sup>, pin A<sup>1</sup>, sleeve D, extension D<sup>1</sup>, bolt F, and colter-arm E, all in the manner and for the purpose herein described.

2. The tubular sleeve D, formed with the toothed head d d<sup>1</sup> and perforated brackets or extensions D<sup>1</sup> D<sup>2</sup>, substantially as and for the purpose described.

3. The tubular sleeve D, provided with teeth d<sup>1</sup>, whereby the colter can be locked in any position to which it may be adjusted, and also provided with the segmental slot d<sup>2</sup>, in combination with the bolt F and colter-arm E, whereby the colter, with its arm, can be adjusted after it is swung around and locked by the teeth of the sleeve D, substantially as described.

4. The colter-arm provided with a forked end, e<sup>2</sup>, in rear of its pivot e, in combination

with the tubular sleeve D, provided with the extension D<sup>1</sup>, having the slot d<sup>2</sup>, and the adjustable stop-bolt F, substantially as described.

5. The colter-arm forked, as at e<sup>2</sup>, on its rear end, said forked end being in rear of the pivot e, and serving for interlocking the colter, in combination with the device F, which adjusts it to a position parallel with the plow-beam, and also limits its vibration, substantially as described.

**219,663. EZRA B. WHITMAN,** Baltimore, Md. Colter-Holders for Plows. Sep. 16, 1879. Filed July 31, 1879.

Claim. In combination, a plate, C, having through one end a bolt for attachment to the plow-beam, and provided on the upper side with serrations, and arranged so as to leave a space over the serrations and between them and the beam, and a colter-holder having at its rear side a brace, m, the extremity of which is adapted to be pivoted to the beam near the standard, and having at its forward part a plate, h, provided on the lower side with serrations adapted to engage with those on the plate attached to the beam, as set forth.

**219,680. NELSON P. BOWSHER,** South Bend, Ind., assignor to the South Bend Iron Works, same place. Rolling-Colters for Plows. Sep. 16, 1879. Filed Aug. 9, 1879.

Claim. 1. In a revolving plow-colter, the combination, with the colter-blade provided with renewable journals having conical or tapered ends, of renewable bearings formed with conical or tapered recesses, substantially as set forth.

2. In a revolving plow-colter, the combination of the colter-blade, the renewable journals having conical or tapered ends, the renewable bearings formed with conical or tapering recesses, the tightening-bolt or axle, and the yoke-arms, substantially as set forth.

3. In a revolving plow-colter, the combination, with the colter-blade provided with hubs on opposite sides of its center, said hubs being furnished with longitudinal splines or ribs, of removable journals having conical or tapered ends and furnished with longitudinal grooves, which latter receive the splines of the hubs, substantially as set forth.

4. In a revolving plow-colter, the combination, with the colter-blade provided with hubs on opposite sides of its center, said hubs made tapering and furnished with longitudinal splines or ribs, of removable journals having conical or tapered wearing ends and tapered inner ends or shanks having longitudinal grooves in the surfaces thereof, substantially as set forth.

5. In a revolving plow-colter, the combination, with detachable journals secured within hubs attached to the colter-blade, of renewable bearings having conical or tapered recesses for the journals, said bearings provided

with collars on their outer ends, which rest against the outer surfaces of the arms of the yoke, substantially as set forth.

**220,161. KINYON W. MANWARING,** Moline, Ill. Colters. Sep. 30, 1879. Filed June 19, 1879.

Claim. 1. The combination, with the clamp-frame, substantially as herein described, of the bolster, the colter-shank, and the screw-eye-bolt, these parts constructed and operating to hold the colter in an adjustable manner vertically, to regulate its working depth, and capable of use on right and left hand plows, substantially as and for the purpose hereinbefore set forth.

2. The combination of the laterally-slotted clamp-frame, the bolster, the screw-eye-bolt, and colter-shank, constructed and operating as herein described, to adjust the colter both up and down and sidewise, and capable of use on both right and left hand plows, substantially as and for the purpose hereinbefore set forth.

**220,650. HENRY OLDENDORPH and JOHN OLDENDORPH,** Du Quoin, Ill. Colter-Attachments for Plows. Oct. 14, 1879. Filed Nov. 20, 1878.

Claim. 1. The combination of the standard D, the sections d E, forming the lubricating-box, as shown, the axis a, having the V-bearing a<sup>3</sup>, thread a<sup>4</sup>, shoulder a<sup>2</sup>, the washers B C, and colter-wheel A, by means whereof the said colter and axle can revolve in manner described, and all said parts be supported by the single standard employed, as shown and described.

2. In combination with the standard D, having fork e<sup>2</sup>, the angle-plate F, having holes f' and bolt f, to operate as and for the purposes set forth.

**221,053. REUBEN GRAVES,** Hope Town, (Lostant P. O.) La Salle County, Ill. Jointers for Plows. Oct. 28, 1879. Filed Aug. 27, 1879.

Claim. The jointer formed by the combination of the standard A, made with a triangular concaved foot, forming three bearing-points, and having a round bolt-hole through its middle part, the plow-plate B, provided with a square bolt-hole, and the bolt C, having the part that passes through the plow-plate B square and the part that passes through the standard-foot round, substantially as herein shown and described.

**222,113. HERMAN E. WISNER,** Howell, Mich. Combined-Jointers and Cutters. Nov. 25, 1879. Filed Apr. 23, 1879.

Jointer attached to a colter; the pitch and height adjustable.

Claim. The plate B, having the curved slot b<sup>2</sup>, and provided with the jointer-seat B', in combination with the colter A, having a series of holes, a', as shown and described.

**222,711. JOHN LANE,** Hyde Park, Ill. Wheel-Colters. Dec. 16, 1879. Filed May 1, 1879.

Claim. The colter-blade having a middle-section part of hard-tempered cast-steel, combined with exterior parts of less hard-tempered cast-steel, made and combined substantially as and for the purpose set forth.

**223,151. JOSEPH LANE,** Chicago, Ill., assignor of one-half of his right to Samuel S. Fuller, Stratford, Canada. Rolling-Colters. Dec. 30, 1879. Filed Oct. 24, 1879.

My invention relates to rolling-colters for plows; and it consists in combining with a mold-board plow a rolling colter made dished or concaved on the mold-board side, whereby the straw, grass, and manure are not only cut, but are turned over so that they will be completely covered by the plow, as hereinafter fully described.

Claim. The combination, with a mold-board plow, of a rolling-colter made in dished form and arranged with its dished or concave side on the mold-board side of the plow, as described.

**223,831. ETHAN ALLEN,** Kalamazoo, Mich. Jointers and Colter-Blocks. Jan. 27, 1880. Filed June 19, 1879.

Claim. 1. The combination, with a jointer and colter-block having a horizontal slot in each side portion thereof and a plow-beam having corresponding transverse holes, of a pivotal rolling bearing formed between the block and beam, together with bolts which work in said holes and slots, substantially as set forth.

2. The combination, with a jointer and colter-block having a vertical flange on its rear central portion, and having transverse horizontal slots on opposite sides of said flange, of a plow-beam having holes which register with the slots and bolts which work in said slots and holes, substantially as set forth.

**225,053. JOHN G. GROSS,** Saline, Mich. Plows. Mar. 2, 1880. Filed Aug. 20, 1879.

Claim. The combination, with the plow-standard B, having a slotted and serrated face, of the plate C, having one side serrated and the other provided with a ratchet disk or rosette, the jointer-arm D, having a corresponding disk, and the bolt E, passing through the slot of the standard and through such plate and the jointer-arm, securing the parts adjustably together, substantially as described and shown.

**225,342. ARCHIBALD L. CHUBB,** Grand Rapids, Mich. Plows. Mar. 9, 1880. Filed Aug. 30, 1879.

Standard with a lug-support for the jointer-

arm and notched beam-plate for a bearing. The arm beveled for finer adjustment.

Claim. 1. The combination, with the beam-carrying plate C, provided with notch *a*, and the standard having lug *b*, of the jointer-arm D, supported between the said notch and lug, and the clamp E, for adjustably securing such jointer-arm in position, substantially as described and shown.

2. In combination with a plow-beam and standard, the curved-arm D, beveled, as described, carrying the jointer and secured to the side of the beam and standard and in engagement with the recess and lug by the gripe E, substantially as and for the purposes specified.

**225,743. LUKE CHAPMAN**, Collinsville, Conn., assignor of one-half of his right to the Collins Company, same place. Rolling-Colters. Mar. 23, 1880. Filed Oct. 1, 1879.

Claim. In combination, in a plow-colter, the colter-disk *a*, the shaft *b*, having its central parts enlarged and shouldered, the suspensory bar *c*, the recessed caps *d d*, attached to the disk and bearing inwardly against the shoulders on the shaft, and the friction-rolls *e e*, abutting at their ends against the caps, all substantially as herein shown and described.

**226,148. AUSTIN ADDAMS**, Freeport, Ill. Plows. Apr. 6, 1880. Filed July 25, 1879.

Claim. The angular-arm A, having a curved or inclined upper end, apertures *b*, and slot *a*, in combination with the curved or inclined clamping-piece B, having apertures *d*, and with the curved arm C, pivoted to the lower end of the arm A by the bolt *g*, and provided with a slot *c*, through which and the slot *a* another bolt, *g*, passes, whereby the arm C may be adjusted, substantially as shown and described.

**226,316. SAMUEL HUBER**, Danville, Pa. Plow-Colters. Apr. 6, 1880. Filed Jan. 17, 1880.

Claim. The plow-colter B, sharpened in front, having the fringe-cutter offset *a*, and provided with the sharpened vertical point *b*, as shown and described.

**226,641. EDMUND WANSBROUGH and WILLIAM W. SPEER**, Pittsburgh, Pa. Plows. Apr. 20, 1880. Filed Feb. 13, 1880.

Claim. The combination, with a colter-standard and a perforated, corrugated, or serrated disk connected with its lower end, of a colter or jointer plow having a corrugated or serrated disk formed on a plate cast solid with the colter or jointer plow, and extending rearward from the mold-board therefrom, and a bolt extending through the disks on the standard and rearwardly-projecting plate, substantially as and for the purpose shown and described.

**227,373. KINYON W. MANWARING**, De Witt, Iowa. Colters. May 11, 1880. Filed Mar. 2, 1880.

Claim. 1. The combination, with a clamping frame provided with serrated cross bars, of a yoke shaft socket provided on one side with serrated faces which engage with serrated faces on the cross bars of the clamping frame said socket formed with a continuous tubular bearing at its upper and lower ends, and a clamping bolt which is inserted through a hole in its socket, the head of the bolt seating in a recess formed on the inner surface of the socket said bolt extending between cross bars on the clamping frame, and a nut for securing the bolt against displacement substantially as set forth.

2. The combination, with a yoke shaft socket provided with an annular slot, of a clamping collar provided with a hook to engage the annular slot, substantially as and for the purpose herein before set forth.

3. The combination, with the yoke shaft socket and a yoke shaft, of a hook clamping collar, substantially as and for the purpose herein before set forth.

4. The combination, with a colter and its journals, of journal bearings provided with sockets for receiving the ends of the yoke, and adapted to be adjusted forward or backward upon the ends of the yokes, substantially as set forth.

**229,381. JOHN CLAYTON**, Brainard, Minn., assignor to Mary Ann Clayton, same place. Colters. June 29, 1880. Filed Feb. 7, 1880.

Hub sections formed with annular projecting flanges to exclude dirt from the wearing surfaces, and rotating upon fixed tapered journals, between which and the yoke arms are interposed washers, which prevent the rotation of the journals and assist in excluding dirt.

Claim. 1. The combination, with the rotating colter A, and sections B, the latter having the annular projections *d*, of the fixed tapered non-rotating journals F, and the fixed non-rotating washers G, whose inner ends abut the vertical shoulders of said journals and sections, all as shown and described, for the purpose specified.

2. In a rotary plow colter, the combination of the washers G, with the journals F, having tapered outer ends, on which the washers are fitted, and the hub sections B B, having projecting flanges *d d*, said washers being arranged to break joints with the other parts as shown and described, for the purpose specified.

**230,883. ABRAHAM J. MANNY**, St. Louis, Mo. Rotary Colters. Aug. 10, 1880. Filed Feb. 9, 1880.

A one-piece self-locking colter-hub formed with a recessed collar on one end and lugs upon the other. A disk having its central portion radially slotted and the cut parts bent outward

in opposite directions, so as to form diverging legs, is locked to the hub by the legs upon one side engaging the recesses in the collar, while the opposite legs abut against the lugs.

**Claim. 1.** In a rotary colter, the combination, with a colter-blade, of the self locking hub with projection or projections at each side of the blade cast in one piece with the hub, substantially as and for the purpose set forth.

**2.** The combination, with the collar C, having the recesses c' on its inner face, of the lugs or notched collar E, cast in one piece with the hub and collar C, substantially as and for the purpose set forth.

**3.** In a rotary colter, the combination with the collar on the hub at either side of the blade with recesses in or projections on its face, of the blade with corresponding projections or recesses in its face, substantially as and for the purpose set forth.

**231,074. KINYON W. MANWARING,** De Witt, Iowa. Colter Attachments. Aug. 10, 1880. Filed Mar. 6, 1880.

**Claim.** The combination, with the clamping frame, a colter shaft socket provided with continuous tubular bearings at its upper and lower ends, and a fastening bolt which is inserted through an opening in the socket, the head of the bolt being seated in a recess formed on the inner surface of said socket, of a clamping plate inserted between the colter shaft and socket and clamping set screws inserted in the socket and adapted to secure the colter shaft in any desired vertical adjustment, substantially as set forth.

**231,441. LATHON MILLER and HIRAM LIGHTHALL,** Chelsea, Mich. Plows. Aug. 24, 1880. Filed May 19, 1880.

A curved plate forming the colter edge of the mold board and extending to the upper part of the standard and forming a corrugated adjusting seat for the jointer arm.

**Claim. 1.** The shin piece A, having an extension arm serrated on one side, and the countersunk socket a, in combination with the jointer arm B, having corresponding serrations and a projecting boss, b, to correspond with the socket a in the arm of shin piece A, substantially as and for the purpose described.

**2.** The combination of the jointer arm B, with its serrations, and boss b, with the shin-piece A, having its serrated arm and sunken socket a, and the standard of a plow, substantially as and for the purpose described.

**232,370. ALBERT C. SCHRAM,** Flint, Mich. Combined Colters and Jointers. Sep. 21, 1880. Filed June 25, 1880.

**Claim.** The combination with the curved jointer C, provided with the flange d, having a bolt hole and pin e, all cast in one piece, of the annular colter A B, provided with the inclined slot a having chamfered edges, and

headed bolt b, the whole constructed, arranged, and operated in the manner and for the purpose set forth.

**233,793. GARDNER C. NOTT,** West Point, Wis. Colters. Oct. 26, 1880. Filed Jan. 23, 1880.

**Claim.** In a plow colter, the combination of the supporting bar A, having the spur d, on its bent lower end and terminating in the flange a', provided with an oblique face and rivet holes of the mold board B, having a nearly horizontal upper edge b', terminating in a curved arm b'', encircling and lying above the lower end of the roller, roller c, having a cavity in its lower end, roller shaft e, having the recess n, slotted adjustable arm d', having a socket or bearing at its outer end, and key m, the whole constructed, arranged, and operated in the manner and for the purpose set forth.

**234,251. HENRY A. CURRIER,** Almont, Mich. Jointers for Plows. Nov. 9, 1880. Filed Sep. 15, 1880.

**Claim. 1.** The combination of a plow-point having a vertical cutting-edge with a jointer which is applied directly to the side of the cutting-edge, substantially as shown.

**2.** The combination of a plow-point having a vertical cutting-edge, B, and a jointer which is applied directly to this edge, the jointer being provided with a flange and the edge with a corresponding groove in which the flange fits, whereby the jointer is kept straight, substantially as specified.

**3.** The combination of a plow-point having a vertical cutting-edge, B, and clamping-bolt, C, a plow-jointer consisting of the two parts D F, which are united together, the part F being provided with the slot O, through which the clamping-bolt passes, and by means of which slot the jointer can be adjusted up and down, substantially as shown and described.

**238,115. CHARLES R. HARTMAN,** Vincennes, Ind. Colters. Feb. 22, 1881. Filed Dec. 30, 1880.

**Claim. 1.** The cheek-piece E, having slots c' and b and reduced end f', cheek-piece D, having slots d' and d, in combination with clamps G and rods A, substantially as and for the purpose set forth.

**2.** The slotted arm F b, secured to the cheek-pieces E D, in combination with a laterally-adjustable colter, as set forth.

**241,086. GARLAND B. ST. JOHN,** Cedar Rapids, Iowa. Plows. May 3, 1881. Filed Feb. 11, 1881.

The revolving concavo-convex disk supplies the place of the front part of the share and mold-board, both of which are cut away as shown.

**Claim. 1.** In a plow, the half-share and mold-board C, cut away at c' in front on a cur-

ved line, its forward end or point extending about to the center of the disk C, and combined with said disk, which is mounted by sleeve E, on the inclined arm F, extending from the plow-beam, substantially in the manner and for the purposes set forth.

2. In a plow, the combination of the revolving concavo-convex disk with the half-share and mold-board arranged to work in unison, said disk cutting in advance of the mold-board, substantially as described.

**243,102. BYRON C. BRADLEY,**  
Chicago, Ill., assignor to Furst & Bradley Manufacturing Company, same place. Castor-Colters and Jointers. June 21, 1881. Filed Nov. 25, 1879.

A rolling castor-colter and a jointer attached to a single standard.

Claim. In combination with the standard D, the attached fork C, having its depending arms embracing and carrying the rotary castor-colter, and the rigid bar E, secured directly to the fork or standard and provided with a jointer A, substantially as described, whereby the standard serves as a single point of connection between the plow-beam and both the castor-colter and jointer, as set forth.

**243,124. CHARLES A. HAGUE,**  
Chicago, Ill., assignor to Furst & Bradley Manufacturing Company, same place. Jointers. June 21, 1881. Filed Oct. 22, 1880.

Claim. 1. The vertically-adjustable front and rear brackets, B and D, arranged at the side of the plow-beam, and each having its lower end bent, as described, in combination with the colter E, having the front and rear ends of its upper longitudinal portion connected with the bent ends of the brackets to form two points of connection between the plow-beam and the colter, substantially as described.

2. The combination of the adjustable bracket-brackets B D with the bracing landside E, having slotted lateral projections i j, substantially as and for the purpose described.

**283,126. CHARLES A. HAGUE,**  
Chicago, Ill., assignor to Furst & Bradley Manufacturing Company, same place. Castor Gage-Wheel. June 21, 1881. Filed Oct. 22, 1880.

Claim. 1. The bracket B, provided with the depending axle, e, in combination with the socket C, swiveled on the axle, and provided with the front projection i, and rear projection, d, having the slot e, the arm g, pivoted to the projection i, and the transverse bolt f, extending through the slot e and engaging the arm g in rear of its pivot, substantially as and for the purpose described.

2. In combination with a plow-beam, a bracket bolted to the same and constructed with a depending cylindrical axle, a socket swiveled to the axle, and a vertically-movable

arm carrying a rotary caster-wheel, and pivoted to the socket at front portion and adjustably connected with the socket at the rear portion thereof, substantially as shown and described.

**243,138. CHARLES S. JENKINS,**  
Lansdale, Pa. Plows. June 21, 1881.  
Filed Apr. 9, 1881.

A jointer is provided with an adjustable gage-wheel upon a gravitating arm. The wheel gages the depth of the jointer but not of the plow, unless the arm is made rigid.

Claim. 1. In a plow, a colter pivoted to the plow and adapted to rise and fall by its own gravity independently of the plow, to accord with the undulations of the ground, as and for the purpose specified.

2. In a plow, a colter secured to an arm pivoted to a plow, said colter being adapted to rise and fall by its own gravity independently of the plow, to accord with the undulations of the ground, substantially as and for the purpose specified.

3. In a plow, a colter pivoted to the plow, in combination with a wheel secured to said colter, to cause the same to rise and fall in accordance with the undulations or variations in the surface of the ground, as and for the purpose specified.

4. In a plow, the combination of the plow-frame A, plow-share B, pivoted arm D, colter E, guide-wheel M, and scraper N, as and for the purpose specified.

5. In a plow, the combination of the pivoted colter E and its arm, slot J, adjustable bracket K, wheel M, and scraper N, as and for the purpose specified.

6. In a plow, a colter, E, in combination with a guide-wheel, M, pivoted to the same, and mechanism to adjust said wheel with reference to the colter, substantially as and for the purpose specified.

**243,799. ALBERT M. ROSS,** Ilion, N. Y. Jointer-Plows. July 5, 1881. Filed May 4, 1881.

Claim. 1. The frame or holder B, consisting of the plate m, having a transverse rib e, at each end, the central standard, E, with its front and rear braces, d, in combination with the hook-bolts f, substantially as shown and described.

2. In combination with the above-described frame or holder B, the vertically-adjustable curved standard G and mold-board C, all constructed and arranged to operate substantially as and for the purpose set forth.

**246,557. EDMUND D. REYNOLDS**  
and **OLIVER B. REYNOLDS,** Brockton, Mass. Rolling-Cutters for Plows. Aug. 30, 1881. Filed June 10, 1881.

Claim. 1. The rolling-cutter B and frame B', having the hub C, in combination with the slotted-adjusting plate D, provided with ribs i i

and  $\sigma\sigma$ , hollow-spindle  $g$ , having plate  $h$  on its upper end, bolt  $E$ , washer  $W$ , and nut  $T$ , substantially as described.

**2.** The hub provided with the slotted-box  $f$  and notched plate  $e$ , in combination with the pivoted frame  $B'$ , bolt  $R$ , and hooked-plates  $q$ , constructed as described, for the purpose set forth.

**250,139. MANNASSEH W. FARBER,** Henry County, Iowa. Plow-Cutters. Nov. 29, 1881. Filed June 30, 1881.

Cutter bolted to land-side, sloped backward, bent in at the top, and adjusted laterally by means of a reversible wedge.

Claim. **1.** In combination with the bar  $C$  of a plow, the removable cutter  $A$ , fastened to the outside of the bar  $C$ , its cutting-edge extended upward and sloped slightly backward, and adapted to be adjusted inward or to land, as shown and described, and for the purposes specified.

**2.** In combination with the removable and adjustable cutter  $A$  and the bar  $C$ , the reversible wedge  $I$ , adapted to be used, as described, between the bar  $C$  of a plow and the lower end of the cutter  $A$ .

**250,249. DAVID W. HUGHES,** Hamilton, Ohio. Rolling-Colters. Nov. 29, 1881. Filed Apr. 13, 1881.

Claim. **1.** A rolling-colter having the form of a regular polygon bounded by unbroken right lines.

**2.** A rolling-colter having the form of a regular hexagon bounded by unbroken right lines.

**3.** A rolling-colter formed of sections set with their contiguous edges abutting and rigidly united to a central flange.

**4.** A rolling-colter formed of separate sections united to central flanges by means of bolts in alternate sections and dowels in intermediate sections.

**5.** A polygonal rolling-colter disk formed from a slab having a chamfered edge.

**6.** A hexagonal rolling-colter disk formed from a slab having each edge chamfered.

**7.** Sections for polygonal colters of triangular form with one angular side chamfered.

**8.** Sections for hexagonal colters in the form of equilateral triangles with one angular side chamfered.

**9.** Sections for polygonal rolling-colters formed from a slab having a chamfered edge.

**10.** Sections for polygonal rolling-colters formed from a slab having both edges chamfered.

**11.** Sections for hexagonal colters formed from a slab having both edges chamfered.

**12.** The process of forming colters, which consists in preparing a slab with suitable edges, cutting sections from the edge of such slab,

and uniting such sections firmly with a central flange.

**13.** The process of forming colters, which consists in preparing a slab with suitable edges, cutting hexagons from such slab in the manner shown and described, and uniting the sectional scrap resulting with a central flange to produce a polygonal disk.

**251,602. ALVIN J. KERSH,** Oakland, Tex. Plow-Colters. Dec. 27, 1881. Filed Sep. 29, 1881.

Claim. In a plow, the combination, with the standard  $A$  and shovel  $B$ , of the colter attachment consisting of a pointed colter or cutter forming a landside for the shovel, having its rear outline curved to conform to the face-curve of the shovel, the upper rear perforated arm notched at  $c$  to form the point  $d$ , and adapted to be secured to either side of the standard, substantially as specified.

**252,902. HANS H. SATER,** Dubuque, Iowa. Devices for Attaching Roller-Colters to Plows. Jan. 31, 1882. Filed Sep. 19, 1881.

Claim. **1.** The arm or bracket  $A$ , provided with serrations  $f'f'$ , recess  $I$ , and slot  $G$ , in combination with the colter-stem  $B$ , eyebolt  $D$ , and seat  $C$ , having serrations  $g'g'$  and shoulder  $i$ , whereby said seat  $C$  is prevented from dropping down when the bolt  $D$  is loosened, substantially as shown and described.

**2.** The plow-beam  $F$ , combined with an arm or bracket,  $A$ , provided with the extended bearing-face  $C'$ , projection  $C^2$ , with rib  $C^3$ , and the flanges  $a$  and  $a'$ , substantially as shown and described.

**3.** The plow-beam  $F$ , combined with an arm or bracket,  $A$ , having the bearing-face  $C'$ , projection  $C^2$ , and lugs  $a$  and  $a'$ , in combination with the strap-bolt  $B$ , substantially as shown and described.

**254,334. ALBERT A. KELLOGG,** Chamois, Mo. Stalk-Cutters. Feb. 28, 1882. Filed Dec. 16, 1881.

Claim. **1.** In a stalk-cutter, the plow-beam  $A$ , colter  $K$ , and cutter-carrying hub  $G$ , combined with and held together by a pivot,  $I$ , made to hold the cutter  $K$  fast to the beam and to allow the hub to turn on it, as shown and described.

**2.** The combination, with the plow-beam, of a fixed front-sharpened colter,  $B$ , and rear-sharpened cutters  $K$ , the latter extending beyond the former, arranged radially in a hub,  $G$ , attached, with the colter, to the side of plow-beam, as shown and described.

**255,081. FRANKLIN B. HUNT,** Richmond, assignor of one-half to D. B. Robbins, Economy, Ind. Rolling-Colters. Mar. 14, 1882. Filed Dec. 9, 1881.

Claim. **1.** The arms  $C$ , provided with the recess  $E$  and holes  $F'$ , in combination with

the shank B, provided with the neck F, and elongated head D, and bolts G, substantially as set forth.

2. In combination with the journal of the rolling-colter A, the cups H, cushions I, bearings K, and screw-plugs L, substantially as set forth.

3. In combination with the rolling-colter and the socketed part P, the cushions I, wooden bearings K, and screw-plugs L, substantially as set forth.

4. In combination with the rolling-colter and socketed part P, the wooden bearings K K, hollow screw-plugs L L, and bolt N, substantially as shown and described.

5. In combination with the socketed part P and the bearings J of the rolling-colter, the wooden bearings K, cushions I, and screw-plugs L, substantially as set forth.

6. The cups H, arranged to pass beyond the cushions I and embrace the flanges of the bearings J, in combination with said cushions, bearings K, and screw-plugs L, substantially as shown and described.

7. The cups H, arranged to pass beyond the cushions I and embrace the flanges of the bearings J, in combination with said cushions, bearings K, screw-plugs L, and bolt N, substantially as set forth.

8. In combination with the arms C C and socketed portions P P, provided with the screw-plugs L L, the bolt N, substantially as shown and described.

9. In combination with the arms C C and socketed portions P P, provided with the screw-plugs L L and cups or recesses H H, the bearings J K, cushions I I, and bolt N, substantially as set forth.

10. In combination with the socketed portions P P, provided with the recesses H and cushions I, the screw-plugs L L, and bolt N, substantially as shown and described.

**256,250. MORRIS A. SPINK,** Crown Point, Ind., assignor of one-half to Jacob A. Weis, same place. Plow-Colters. Apr. 11, 1882. Filed Jan. 3, 1882.

Claim. The sickle-shaped colter formed with the curved standard A, the cutting-blade a, having its upper end curved to the landside, and the notched shank C, substantially as shown and described.

**256,941. WILLIAM B. YOUNG,** Alton, Ill., assignor to Haigood Plow Company, same place. Wheel-Colters. Apr. 25, 1882. Filed Dec. 2, 1881.

Claim. In a wheel-colter, a hub-boss having the bearing a, shoulder y, and clutch b, in combination with the cap-bush A, having the recess d, with slit e, shoulder r, and bearing e, and with the plug-bush B, having the bearing k, oblique shoulder m, and extension h, all arranged and operating substantially as and for the purpose set forth.

**257,662. OSCAR J. CORNOYER,** St. Louis, Mo., assignor of one-half to Joseph H. Barr, same place. Rotary-Colters. May 9, 1882. Filed Nov. 15, 1881.

Claim. 1. The combination of the standard B and yoke E with the box F, secured to the yoke, and the bearing-blocks G, adjustably secured to the standard, for the purpose set forth.

2. The combination, with a yoke, E, and flanged box F, of the standard B, having orifices b, and the bearing-blocks G G, having pin g', the said blocks being adjustable on the standard, as and for the purpose set forth.

3. The combination of standard B, adjustable bearing-blocks G, with flanges g, pin g', box F, having grooves f f<sup>2</sup>, bolt f', and the yoke E of a rotary colter, all made substantially as set forth.

4. In combination with the standard B, yoke E, and box F, the adjustable bearing-blocks G, having the teats g<sup>3</sup> secured thereto, as and for the purpose set forth.

5. The blocks G G, formed with teats g<sup>3</sup> g<sup>3</sup>, and provided with the pin g', in combination with the box F, having stop f<sup>3</sup>, and the standard B, having orifices b, as set forth.

6. The combination of the cutter D, disks H H, having hubs h h, concentrically-ribbed arbors J J, yoke E, bolt K, and the concentrically-grooved housings I I intermediate of the arbors and hubs, as set forth.

**259,317. PETER KETTENRING,** Defiance, Ohio., assignor to the Defiance Machine Works. Plow-Attachments. June 13, 1882. Filed Mar. 23, 1882.

Claim. The combination, with the plow-beam D, of the plate A, provided with transverse slots a, adapted to receive a bolt on each side of the plow-beam, and having a rear extension, b, to fit under the beam, and the socket-plate B, formed integral with and at an angle to the plate B, and strengthened by a brace G, substantially as and for the purpose specified.

**259,861. HORACE HUNTSMAN,** Sacramento, Cal. Plow-Jointers. June 20, 1882. Filed Jan. 3, 1882.

Claim. The combination of the crank standard F, the jointer mold-board G, the bed-plate L, rivets J, clamping bolts K, and plate N, substantially as shown and described.

**262,446. ABRAHAM J. MANNY,** St. Louis, Mo. Rotary Colters. Aug. 8, 1882. Filed Feb. 5, 1880.

A rotary colter formed by slotted radially the central portion of the blade and bending the cut parts outward alternately in opposite directions, so as to form an expanded or increased axial bearing for the disk.

Claim. 1. A rotary colter or cutter made from a single plate of metal and having lateral

expansion at the central portion from its peripheral plane, such expansion not extending to the periphery of the blade.

**2.** A rotary cutter or colter formed of a single plate of metal, with its central portion radially slitted and the cut parts bent outward alternately in opposite directions to form the bearing for the disk.

**263,079. COMER C. VINCENT,** Greensborough, assignor of one-half to John Bones Moore, Augusta, Ga. Plow Colters. Aug. 22, 1882. Filed May 10, 1882.

Claim. The combination, with a plow standard and a shovel provided with perforations  $b$  and  $b'$ , of a colter blade having integral therewith the screw tapped arm  $a^2$ , and the steady pin  $a^3$ , projecting from the back of the blade, substantially as and for the purpose described.

**263,112. THOMAS CAPEHART,** Walter Valley, Miss. Colters. Aug. 22, 1882. Filed Mar. 25, 1882.

Claim. The combination, with the plow-standard  $a$  and the plow-plate  $b$ , having the indentation  $d$  near its point and the heel aperture  $c$ , of the colter  $C$ , its curved bearing edge  $g$ , tooth  $k$ , shoulder recess  $m$ , and bolt arm  $p$ , extending through the plate and standard and secured by the nut  $z$ , substantially as specified.

**263,941. DAVID MORRIS and HUGH SPEIRS,** Bunker Hill, Ill. Plow-Colters. Sep. 5, 1882. Filed Apr. 25, 1882.

Claim. In a plow colter, the combination, with the colter  $A$ , having feathered to its hub  $B$  a sleeve,  $C$ , of the yoke  $D$ , having one end apertured and the other end countersunk, the washers  $E$ , and the journal  $F$ , with its head let

into the countersink of the yoke and pinned to the apertured end of the yoke, substantially as and for the purpose set forth.

**264,307. ROBERT KLOSS,** Shabonier, Ill. Rolling Colters. Sep. 12, 1882. Filed May 27, 1882,

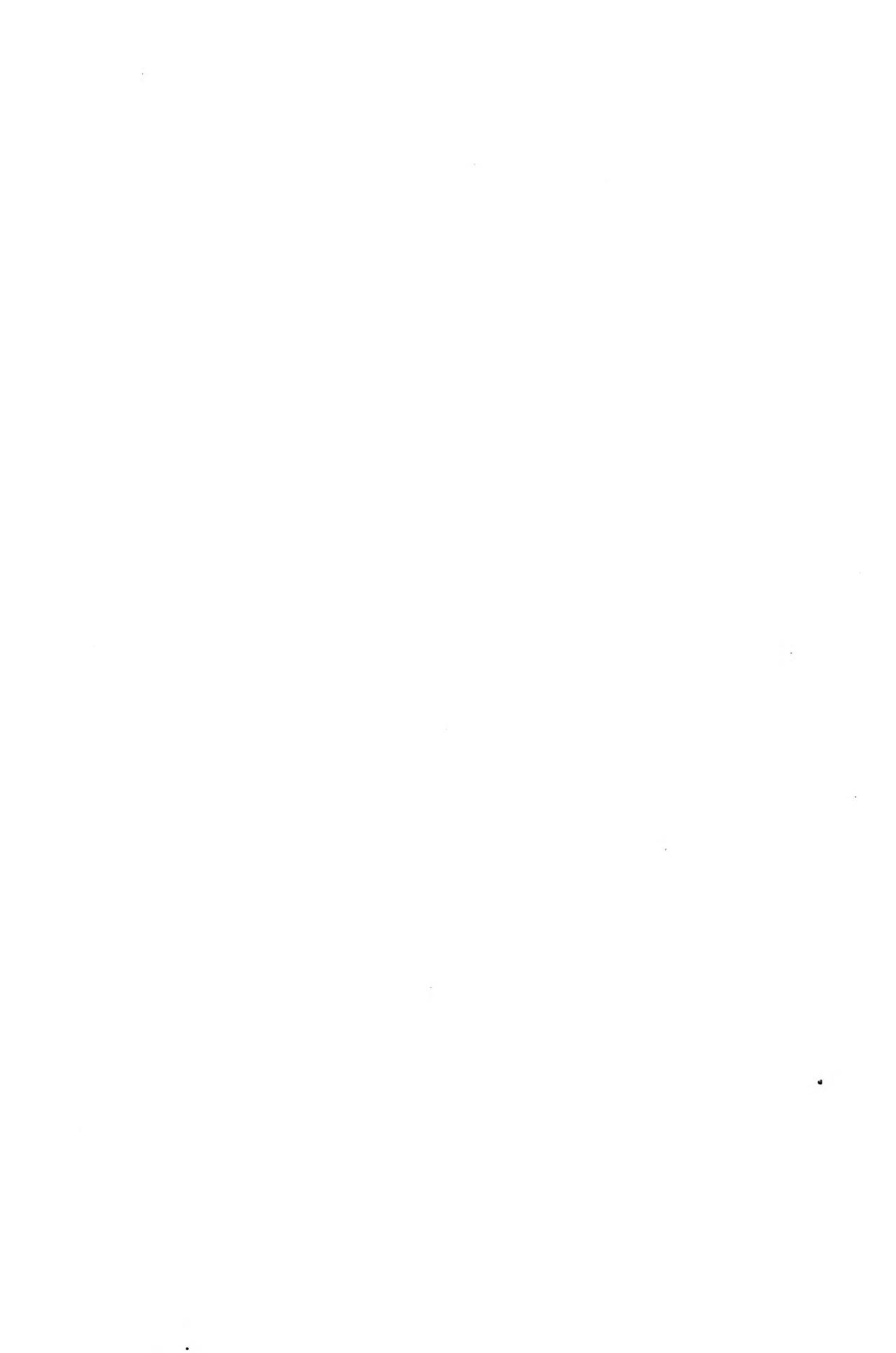
Stationary disks with the recesses in which colter hub has its bearings, one disk having a lug which engages the standard and the other screwed upon threaded end of axial bolt, the parts being firmly bound after adjustment by nut upon said bolt. The hub has also a bearing upon the reduced portion of axial bolt.

Claim. In a rolling colter, the combination of the cutter  $B$ , having hub  $b$ , socketed disks  $C C'$ , the latter having projection or stop  $c'$ , and bolt  $D$ , having enlarged portion  $d$ , and threaded portion provided with nut  $c$ , with the yoke or standard, substantially as shown and described.

**267,846. ENOCH C. EATON,** Pinckneyville, Ill. Colter Fasteners. Nov. 21, 1882. Filed Sep. 2, 1882.

The colter is swiveled to a vertical perforated bar, which is attached to a plate having two horizontal slots and a flange at right angles thereto for attachment to the plow-beam. By means of the slots in the flanged plate and the perforations in the swivel bar the colter may be adjusted vertically and laterally and may be set at any desired inclination.

Claim. The combination, with the colter  $a$ , crotched arm  $b$ , and a vertical bar  $c$ , having holes in the plane of the colter and parallel to the plow-beam, of the connecting plate  $f$ , having the horizontal slots  $g$  and right angled flange  $l$ , the bolts  $m$ , and the bar  $n$ , as and for the purpose specified.





## CORN-COVERERS.

| <i>Plate</i>    | <i>Claim</i> |  | <i>Plate</i> | <i>Claim</i> |                       | <i>Plate</i> | <i>Claim</i> |                    |     |     |
|-----------------|--------------|--|--------------|--------------|-----------------------|--------------|--------------|--------------------|-----|-----|
| Baker, D. C.    |              |  | 187          | 112          | Haynie, J. D.         | 184          | 111          | Moore, J. A.       | 186 | 112 |
| Bennett, H. L.  |              |  | 183          | 111          | Herbert, W. and C. T. | 188          | 113          | Roberts, W.        | 183 | 111 |
| Bryan, J. P.    |              |  | 183          | 111          | McChesney, T. B.      | 187          | 112          | Smeltzer, D. B. D. | 187 | 112 |
| Combs, A. J.    |              |  | 184          | 111          | Marcus, T.            | 183          | 111          | Swart, J.          | 185 | 111 |
| Dietz, F.       |              |  | 186          | 112          | Metz, S. P. and       | 184          | 111          | Weygandt, D.       | 185 | 112 |
| Grant, W. H.    |              |  | 186          | 112          | Rohrer, M.            | 185          | 112          | Whitford, L.       | 186 | 112 |
| Hardesty, B. T. |              |  | 184          | 111          | Monroe, I. N.         |              |              |                    |     |     |

## CORN-COVERERS.

**3,151. JOHN P. BRYAN**, Princeton, Ky.  
Cane-Coverers. June 24, 1843.

Claim. The form of the teeth and the manner of arranging them in the triangular frame to present the flattened sides of each to the earth by advancing one side of the triangle as a front bar instead of the angle or point, as is usually done.

**18,756. TOBIAS MARCUS**, New York,  
N. Y. Corn-Coverers. Dec. 1, 1851.

Claim. The adjustable mold-board F, arranged and operated by means of the circular slide M, in combination with the adjustable beam A, and socket B, secured by braces C and N, in the manner and for the purpose as described and shown.

**29,351. HARMON L. BENNETT**, Long  
Branch, N. J. Machines for Covering Potatoes. July 31, 1860.

This invention consists in the arrangement of a double mold board, adjustable to any desired angle with the beam, so that the earth is gathered into a row from two furrows, and covers the potatoes or other articles planted to any desired depth, according to the inclination of the covering mold boards.

Claim. 1. The triangular mold board f, provided with shares k k and i, and adjustable, relatively to the beam a, by the bars g h, substantially as and for the purposes set forth.

2. In combination with the aforesaid triangular mold board, I claim the harrow l, attached to the bar m and to said mold board f, in the manner and for the purposes specified.

**31,130. WASHINGTON ROBERTS**,  
Roachport, Mo. Covering Plows. Jan. 15,  
1861.

The object of this invention is to cover the seed and press down the ground upon it by one operation, and it consists in the combination of two inwardly flaring shares, attached in an inclined position to the standard of the plow, with a pressing roller arranged close behind the shares and supported by pendants, which at the same time form braces for the shares.

Claim. The arrangement of the inwardly flaring shares A, attached by means of the arm C to the inclined standard B in combination with the pressing roller F, supported by pendants e, the whole being constructed and operated as and for the purpose set forth.

**58,277. SAMUEL P. METZ and  
MARTIN ROHRER**, McDonaldsville,  
Ohio. Corn Coverers. Sep. 25, 1866.

Claim. The upright B, frame C and support E, with roller D in combination with the plow beam A, the whole being constructed and arranged as set forth.

**68,329. A. J. COMBS**, Olney, Ill.  
Corn Coverers. Aug. 27, 1867.

The plows throwing up the two sides of the ridge are followed by a loosely pivoted roller that adjusts itself to the inequalities of the ground.

Claim. The combination of the frames A and E, handles C, roller F, and shovels B, all arranged and operating in the manner and for the purpose set forth.

**74,350. BENJAMIN T. HARDESTY**,  
Sunderlandville, Md. Tobacco Hill Preparers. Feb. 11, 1868.

The plow throws the soil inward, which is then reduced by the harrow and smoothed by the roller. The latter is connected to the cross-bar by links, and to the handles by links and chains.

Claim. The combination of the plow, rake, and roller, and the manner in which the roller is attached,

**78,665. JACOB D. HAYNIE**, New  
Antioch, Ohio. Corn Coverers. June 9,  
1868.

The two series of tines rake the large clods, grass, &c., away from the furrows, the shares throw the loose earth upon the corn, the weighted roller pulverizes the remaining clods and produces a level surface, and by the adjustment of the clevis, the shares may be made to penetrate the earth to a greater or less depth.

Claim. 1. The arrangement, substantially as described, of the two series of rearwardly diverging tines F F', adjustable shares G G', g g', H, and roller I, as and for the purpose set forth.

2. In combination with the described elements F F', G G', g g', H, and I of the preceding clause, the adjustable clevis L l, M m, for the object explained.

**80,680. JAMES SWART**, Hoffmann's Ferry, N. Y. Corn and Potato Coverers. Aug. 4, 1868.

The covering shares are so connected with the frame as to admit of their being readily adjusted to throw more or less soil over the rows as desired. The rollers are mounted in hinged frames at the rear of the machine and are steadied by means of springs bearing upon the frames. The lead wheel is capable of a vertical adjustment.

Claim. 1. The covering shares G G', constructed as represented and described, and provided with the adjustments g, g\*, a, and g<sup>1</sup> g<sup>1\*</sup>, g<sup>2</sup>, substantially as and for the purpose set forth.

2. The combined arrangement of the adjustable lead wheel E, shares and scrapers G G',

and spring rollers H H', all substantially as described, for the purpose specified.

3. The springs J J', in combination with the frames A A' and rollers H H', arranged and operating substantially as and for the purpose described.

4. The combination of the handles C, main frame A, hinged frames I, rollers H, and wheel E, all arranged to operate substantially as herein set forth.

**108,717. ISAAC N. MONROE,** Bridgeport, Ill. Corn-Coverers. Oct. 25, 1870.

Claim. The arrangement of the A-shaped frame A, its widest portion being in front and suspending the roller B, and provided with obliquely placed harrow-teeth  $\alpha\alpha$ , and scraper  $\beta$  on its rear, said scraper and rear part of the frame operating upon the earth while its front is elevated by the roller, as set forth, and for the purpose described.

**127,534. DAVID WEYGANDT,** Jeromeville, Ohio, assignor to Samuel Stacher Corn Coverers. June 4, 1872.

Claim. The corn-coverer herein described, having the adjustable gauge wheel D, the inclined shovels G, facing forward and inward, and the adjustable roller I, pivoted to the U-shaped stirrups K, carrying the scraper L, all constructed and arranged substantially as specified.

**144,918. JOEL A. MOORE,** Salem, N. Y. Corn Coverers. Nov. 25, 1873. Filed Aug. 4, 1873.

A corn coverer provided with two rollers, one in front for crushing the clods, and the other in the rear for leveling. The rear roller is pivoted in arms projecting from the rear of the frame. Between the two rollers are secured ridgers for forming the earth into a ridge to receive the seed.

Claim. The combination described, with the ordinary ridges C, and leveler D, of a front clod crusher, B, that pulverizes the clods before they are taken up into the ridge intended to receive the seed.

**151,104. FRIEDRICK DIETZ,** Eleanor, Ohio. Corn and Potato Coverers. May 19, 1874. Filed Apr. 21, 1874.

The frame is expandable at both ends, and the guide-wheel is laterally adjustable, and is, with the clevis and adjustment, secured by a single bolt. The covering roller is adjustably attached, and can be removed at pleasure.

Claim. 1. The combination of the expandable frame A A' B, clevis I, wheel-bracket E, and clamp bolt and nut C D connecting the whole, substantially as set forth.

2. The combination of the separable roller S, hangers R R', and studs P P' with the standards Q Q' and expandable frame A A' B, substantially as set forth.

**153,793. LEROY WHITFORD,** Harmony, N. Y. Potato-Coverers. Aug. 4, 1874. Filed Jan. 20, 1874.

The implement has furrow-openers on one side, and ridging-plates on the reverse side. The handles are reversible.

Claim. 1. In a furrow-opener and ridging-machine, the reversible handles D, combined with the tie-brace g and socket i, substantially as and for the purpose set forth.

2. The thills e, having a tongue, f, which enters a recess formed in the front end of the handles to assist in turning the implement, substantially as described.

**155,080. W. H. GRANT,** High Grove, Ky. Plows for Covering Corn. Sep. 15, 1874. Filed July 21, 1873.

A curved slotted plate is attached to the under side of the beam, and carries beveled bars or covering shares, which are adjustable laterally in the slot, and have runners on their lower ends.

Claim. The combination, in an implement for covering corn and seeds, of a beam, A, curved and slotted plate E, beveled and adjustable shares or bars F, and brace G, the parts being constructed and arranged substantially as and for the purpose set forth.

**171,829. THOMAS B. McCHESNEY,** Hamersville, Ohio. Corn-Coverers. Jan. 4, 1876. Filed Aug. 13, 1875.

A plow-beam having standards and attachments adjustable and detachable, to constitute a cultivator, corn-coverer, or scraper.

Claim. The combination of beam A B B, sheath D F D' F', pivoted frame G g G' g', roller H I, slotted-hangers J J' J', and stop L, which latter is capable of being set so as to render said frame G g G' g' either a fixed or gravitating one, substantially as herein described, and for the purpose stated.

**174,020. DANIEL B. D. SMELTZER,** Middletown, Md. Corn-Coverers and Markers. Feb. 22, 1876. Filed Jan. 8, 1876.

Claim. In combination with the laterally-extensible beams A' and the upwardly-extended standards B, the extension-rod C, having screw-threads  $\alpha$ , nuts  $\eta$ , the bar D, having slots  $\epsilon$ , and clamp-bolts  $d$ , substantially as specified.

**179,089. DEWITT C. BAKER,** Fulton, N. Y. Cultivators. June 27, 1876. Filed Apr. 21, 1876.

Claim. 1. The combination of the shovel-standards  $\alpha\alpha$ , having inclined sides  $x x$  and right-angled sides  $y y$ , the adjusting wing-irons E E, and the slotted bent bar D, substantially as and for the purpose herein specified.

2. A cultivator constructed with a central beam, A, as set forth, and with shovels C C, arranged as described, and provided with a roller, G, attached thereto by means of a spring, H, substantially as and for the purpose herein specified.

**200,295. WILLIAM HERBERT and CORNELIOUS T. HERBERT,** Irving Park, Ill. Corn and Potato Coverers. Feb. 12, 1878. Filed June 15, 1877.

The side beams carry the scrapers and ex-

pand in front. From the axle of the gage-wheel a loop-standard rises, through which pass the center beam and tongue, both of which are made adjustable in the standard.

Claim. In a corn and potato coverer, the combination, with the fixed center beam F and the adjustable beams and scrapers C C', of the wheels A and axle  $\alpha$ , the loop-standard G, rigidly attached to the said axle, and the hinged pole B, the said pole and beam F adjustable in said loop-standard G, substantially as shown and described.





## CONTINUATION-CHOPPER

| <i>Plate</i>                | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>            | <i>Plate</i> | <i>Claim</i> |
|-----------------------------|--------------|--------------|-------------------------|--------------|--------------|
| Adams, R. N.                | 209          | 127          | Golsan, W. W.           | 206          | 125          |
| Adams, J.                   | 211          | 128          | Greson, E. M.           | 215          | 130          |
| Allen, E. S.                | 244          | 144          | Hale, N. M.             | 216          | 130          |
| Altick, W.                  | 210          | 127          | Hall, J. M.             | 201          | 123          |
| Andrews, W. J.              | 207          | 126          | Hall, J. M.             | 203          | 124          |
| Bailey, C. and Bagby, G. K. | 223          | 133          | Hall, F. A. and Milton, |              |              |
| Banks, G. W.                | 235          | 139          | N. B.                   | 243          | 144          |
| Bates, F. L.                | 223          | 133          | Harcrow, J. M.          | 221          | 132          |
| Bazemore, W. T.             | 200          | 123          | Harris, E. H. and Cleg- |              |              |
| Bethune, J. H.              | 251          | 148          | horn, J.                | 109          | 123          |
| Bibb, W. C.                 | 218          | 131          | Harrison, C. B.         | 229          | 136          |
| Blair, W. W.                | 207          | 126          | Harrison, J. P.         | 234          | 138          |
| Babo, I. H.                 | 238          | 141          | Hart, T. M.             | 248          | 146          |
| Bowman, L. D.               | 241          | 143          | Hartsfield, J. A.       | 205          | 125          |
| Brenner, A. W. and          |              |              | Hatcher, J. W.          | 221          | 132          |
| Fraser, J.                  | 247          | 146          | Helmcke, F. A.          | 249          | 147          |
| Bridges, E. C. L.           | 235          | 139          | Henderson, R. B.        | 209          | 127          |
| Brown, T. J.                | 236          | 140          | Henderson, L.           | 212          | 129          |
| Brown, S. E.                | 249          | 147          | Hinman, J. and French,  |              |              |
| Burch, I. W.                | 213          | 129          | D. S.                   | 205          | 125          |
| Burnham, T. C.              | 227          | 135          | Holt, W.                | 215          | 130          |
| Burnham, T. C.              | 230          | 137          | Holt, R. C.             | 215          | 130          |
| Burnham, T. C.              | 232          | 137          | Hood, J. R.             | 217          | 131          |
| Busch, W.                   | 242          | 143          | Houston, J. D.          | 207          | 125          |
| Cage, H. B.                 | 214          | 129          | Howard, J. R.           | 252          | 149          |
| Camp, S. N.                 | 236          | 139          | Hughes, J. L.           | 251          | 148          |
| Cannaday, C.                | 203          | 124          | Hutson, E.              | 247          | 146          |
| Carson, J. B.               | 240          | 142          | Jefferson, S. A.        | 216          | 130          |
| Chambers, G. W. and         |              |              | Johnson, W. F.          | 104          | 124          |
| Washam, L.                  | 210          | 127          | Johnson, W. J.          | 225          | 134          |
| Collins, I. W. and Wilkin-  |              |              | Johnson, D. M.          | 229          | 130          |
| son, R. Y.                  | 200          | 125          | Johnson, J. J.          | 248          | 147          |
| Coston, J.                  | 225          | 134          | Joyner, L. B.           | 204          | 124          |
| Crichton, W.                | 200          | 123          | Keith, A. M.            | 203          | 124          |
| Curry, B. J.                | 240          | 145          | Keys, M. H.             | 255          | 151          |
| Curry, B. J.                | 253          | 150          | Kidd, I. J.             | 212          | 128          |
| Dale, T.                    | 220          | 132          | Kidd, I. J.             | 212          | 129          |
| Darden, S. C.               | 213          | 129          | Killough, W. B.         | 233          | 138          |
| Davis, M. E.                | 214          | 130          | Kirtley, F. L.          | 212          | 129          |
| Davis, C. C. and A. G.      | 240          | 142          | Lamar, M. B.            | 219          | 131          |
| DeForce, S. A. and Mc-      |              |              | Leatherman, P. R.       | 215          | 130          |
| Connell, W. V.              | 239          | 141          | Leeq, P. O.             | 239          | 141          |
| Dever, J. P.                | 256          | 152          | Lee, K. L.              | 238          | 141          |
| Dickert, C. P. and Heller,  |              |              | Lee, C. J.              | 242          | 143          |
| E. Mc D.                    | 252          | 149          | Leonhard, F. A.         | 220          | 131          |
| Dollahon, C. T.             | 227          | 135          | Lewis, D. P.            | 208          | 126          |
| Doolittle, Z. and Crowder,  |              |              | Lindsey, J. E.          | 247          | 146          |
| A. M.                       | 211          | 128          | Lisle, J. B.            | 253          | 150          |
| Douglas, C. B.              | 219          | 131          | Love, S. M.             | 242          | 145          |
| Draughon, R. I.             | 214          | 130          | Lutz, J. A.             | 216          | 130          |
| Draughon, R. I.             | 245          | 145          | McCaskill, J. C.        | 250          | 148          |
| Dugger, G. W.               | 256          | 152          | McCaughan, C. A.        | 208          | 126          |
| Dunn, J. D.                 | 214          | 130          | McLaugherty, W. H.      | 230          | 136          |
| Earlywine, N.               | 221          | 132          | McClung, R. L.          | 231          | 137          |
| Eaves, J. B.                | 234          | 139          | McCormick, J. R.        | 233          | 138          |
| Enete, E.                   | 213          | 129          | McCracken, W.           | 208          | 126          |
| Eustace, M.                 | 229          | 136          | McKinnon, K.            | 228          | 135          |
| Evans, W. D.                | 230          | 137          | McMeekin, T. G. W. and  |              |              |
| Ewing, L.                   | 232          | 137          | Hunt, W. W.             | 231          | 137          |
| Forney, D. P.               | 202          | 123          | McMillan, J. W.         | 238          | 141          |
| Foster, A. K. and B. H.     | 207          | 126          | McMullen, L. S.         | 254          | 151          |
| Gaines, W. C.               | 219          | 131          | Marable, T. E.          | 226          | 134          |
| Gardner, J. N.              | 234          | 138          | Marsh, 2nd C.           | 217          | 131          |
| Garrett, J. M.              | 225          | 134          | Marsh, 2nd C.           | 218          | 131          |
| Gatling, J.                 | 199          | 123          | Massee, D. W.           | 252          | 149          |
| Gatling, R. J.              | 205          | 124          | Matthews, E. T.         | 222          | 132          |
| Gibbon, C.                  | 210          | 128          | Mickle, J. G. and Dear- |              |              |
| Gibson, R. F. and Mc        |              |              | ring, F. F.             | 230          | 137          |
| Daniel, R. P.               | 237          | 140          | Middlebrooks, J. L.     | 206          | 125          |
| Gilbert, J. W.              | 244          | 144          | Mitchell, J. D.         | 229          | 136          |
| Gilleland, J. H.            | 233          | 138          | Monaghan, P.            | 204          | 124          |
| Glover, F. E.               | 236          | 139          | Moore, J.               | 236          | 139          |
| Goelet, E. H. and E. B.     | 211          | 128          | Moore, J. A.            | 245          | 145          |
| Going, A. J.                | 212          | 129          | Morel, A. H.            | 200          | 123          |

## COTTON-CHOPPERS.

**J. GATLING**, Murfreesborough, N. C. Rotary Cultivators. June 19, 1835.

Claim. The manner in which I have combined the operation of the wheel and hoes in the interior of the frame so as to produce the application I have described of giving motion to the said hoes.

**HARVEY W. PITTS**, Wilsonville, Ala. Cotton Plows. Mar. 31, 1836.

Claim. The machine for plowing and thinning out cotton, called "Pitts' Cotton Cultivator," as before described.

**253. JOHN WEAVER**, Washington, D. C. Rotary Cultivators. July 5, 1837.

Claim. The use and application of the revolving harrows in combination with the before described machine.

**5,257. E. H. HARRIS and J. CLEG-HORN**, Cass Co., Ga. Wheel Cultivators. Aug. 21, 1847.

Claim. The combination of the handles with the axle and hoe frame as described, the handles and hoe frame being independently attached to the axle which forms the fulcrum, and the relative position of the handles and hoe frame being adjustable, the handles are converted into adjustable levers for elevating and depressing the hoes.

**5,340. WINFIELD CRICHTON**, Diamond Grove, Va. Cotton-Choppers. Oct. 23, 1847.

Claim. Placing the cutter in rear of the driving-axle and plows and outside of the frame, as herein described and set forth.

**11,008. WHITMAN PRICE**, Goldsborough, N. C. Rotary Cultivators. June 6, 1854.

Claim. 1. The construction of the accommodating frame *ff*, having uprights *gg*, and cross-ties or suspension bars *h*, together with the compensating strap or equivalent *pp*.

2. The construction of the twisted obliquely-curved blades or thinners *dd d* attached to the radial arms *rr*, forming a rotary cotton thinner; and the using the same with the right and left double-shank furrow-shares *J J*, specifically as set forth, and as arranged with the cultivator, as described.

**11,593. WILLIAM T. BAZEMORE**, Bibb Co., Ga. Cotton Cultivators. Aug. 29, 1854.

Claim. The form of the hoes *C* and *D*, and the arrangement of the rods *A* and *F*, by which arrangement the hoes are made adjustable, and yet may be held stationary.

**12,690. A. H. MORREL**, Marlin, Texas. Rotary Cultivators. Apr. 10, 1855.

Claim. The manner in which I have combined the operation of the wheel and hoes in the interior of the frame so as to produce the application I have described of giving motion to the said hoes.

2. Combining the rotating cutter *d*, with the laterally adjustable thinning point (or points) *m*, and the cultivating point (or points) *r*, substantially, in the manner and for the purpose herein set forth.

**14,540. A. W. WASHBURN**, Yazoo City, Miss. Cotton Choppers. Mar. 25, 1856.

Claim. The bevel wheels for supporting and guiding the machine, when they are arranged in combination with the side scrapers *I*, *I*, and the thinning out cutter *G*, or either of them, substantially in the manner and for the purpose herein set forth,

**17,091. JOHN M. HALL**, Warrenton, Ga. Cotton Cultivators. Apr. 21, 1857.

Claim. In combination with the wheel *P*, the adjustable hoes *i*, constructed, arranged, and operating in the manner and for the purpose set forth.

**17,849. THOMAS E. SHANNON**, Woodville, Miss. Cotton Cultivators. July 21, 1857.

Claim. The combination with a wheel carriage of a series or gang of revolving cultivators, arranged and operated in the manner and for the purpose set forth.

**18,442. DANIEL P. FORNEY**, Jacksonville, Ala. Cotton Cultivators. Oct. 20, 1857.

Claim. The application of the rollers *I* and brake *K*, in combination with the hoes *G* and cranks *E* and *F*, substantially in the manner and for the purpose before described.

**18,785. A. QUARLES WITHERS**, Red Banks, Miss. Cotton Cultivators. Dec. 1, 1857.

Claim. Hanging the stock bars *G G* to the frame by hinge joints, so as to give them a vibratory play side wise, substantially in the manner and for the purpose specified.

**18,939. LORIN WETHERELL**, Worcester, Mass. Rotary Cultivators. Dec. 22, 1857.

Claim. In combination with a plow, *H*, the pair of revolving hoes or scrapers, having a vertical adjustment in addition to the adjustment of the edges, thereof, so that the capacity of the machine may be increased with the increasing height of the plants to be cultivated by it, substantially as set forth.

**22,487. CALVIN CANNADAY,** Indianapolis, Ind. Cotton Cultivators. Jan. 4, 1859.

The nature of this invention consists in arranging the shares or blades E E' of the implement, whereby the same are prevented from being choked or clogged, and also rendered capable of being adjusted to suit the form of the ridges of the rows of cotton plants. It also consists of a thinning hoe L arranged and operated automatically so as to thin out the cotton plants in the drills the required distance apart as the implement is drawn along.

Claim. 1. The two shares or blades E E', when placed obliquely with each other, pivoted to their respective standards e e' and adjusted by the rod G, nut g, and fork F, substantially as and for the purpose set forth.

2. The employment or use of reciprocating hoe L attached to the bar K, which is connected with the rod I, the hoe being operated substantially as shown, to wit, through the medium of the cam J and spring j in connection with the pin z and springs n n', so that the transverse movement of the hoe relatively to the row of the plants will be obtained, and also a vertical movement to allow the hoe to clear the plants when passing over them previous to each thinning out stroke, substantially as shown and described.

3. The lever N when applied to the rod I and used in connection with the thinning hoe L, substantially as and for the purpose set forth.

**22,647. JOHN M. HALL,** Warrenton, Ga. Cotton Cultivators. Jan. 18, 1859.

As the machine is drawn along, the scrapers K cut off the excess of plants in the land, leaving only a row between them, and the driving wheel A impart a rotary motion to the bevel wheel C, which, meshing into the wheel D, causes the shaft E and the hoe-wheel G to revolve the hoes H, chop out the cotton in a transverse direction, and thus leave what remains in hills.

Claim. In combination with the series of adjustable revolving hoes, the scrapers K K, in advance of them, substantially in the manner and for the purpose described.

**24,500. J. C. STODDARD,** Worcester, Mass. Cultivators. June 21, 1859.

The object of this invention is to obtain a scraper wheel that may be rendered available for earthing various kinds of plants, and its operation otherwise modified according to the work required of it.

Claim. The arrangement and combination of the slotted adjustable reversible blades h, arms E, and hub e, as and for the purposes shown and described.

**25,419. ASA M. KEITH,** Kosciusko, Miss. Cultivators. Sep. 13, 1859.

This cultivator is intended to bar off and scrape both sides of a row, chop out twelve

inches and leave four, and to hill and dirt cotton, and to bar off, scrape, and hill or dirt corn all at the same time and by the same movement, thereby saving a great amount of time and labor.

Claim. The arrangement of the double scraper, the hoe drum, and the hillers or cornerers in their relation to each other and to the parts of the frame to which they are attached, as and for the purpose set forth.

**26,606. PETER MONAGHAN,** Camak, Ga. Cultivators. Dec. 27, 1859.

Claim. In combination with the hinged frame of a cotton cultivator, the spring H, which is secured to the tongue of said cultivator for the purpose of automatically raising the rear end of the machine, when the same is released by the operator, substantially in the manner described.

**26,699. THOMAS NEWCOMB** and **G. W. BYRD,** Smith's Fork, Tenn. Cotton Cultivators. Jan. 3, 1860.

The beam A, which is similar to the beam of a plow, is supported by two wheels B behind the two fore wheels C C, and it is furnished with two handles D, whereby the course of the machine may be governed in the same manner as that of plows.

Claim. The arrangement and combination with the plows G C, of the central beam A, double-acting hoe F, cog pinions e d, crank g, rock shaft i, and pitman h, all in the manner set forth for the purpose specified.

**27,987. L. B. JOYNER,** Hilliardston, N. C. Cotton Thinning Plows. Apr. 24, 1860.

Claim. The arrangement of the shares i h, revolving cutters g g, frame a, driving wheel b, and gear wheel d c, substantially as and for the purpose set forth.

**28,583. W. F. JOHNSON,** Wetumpka, Ala. Cotton Cultivators. June 5, 1860.

This invention consists in the use of a rotary wheel attached to a beam provided with hoes or cutters, and so arranged as to be placed under the complete control of the operator, and rotated by the draught of the machine the wheel being placed in such relation to the beam that the knives or hoes will pass obliquely over the rows of plants and cut or thin them out, as required.

Claim. The arrangement of the beam A, wheel E, shaft F, with cutters or hoes f attached, and lever J, (with or without the wheel I,) substantially as and for the purpose set forth.

**28,978. RICHARD J. GATLING,** Indianapolis, Ind. Cotton Cultivators. July 3, 1860.

Claim. 1. A rotary cutter head, provided with hoes or cutters capable of being adjusted, to vary the depth of their cut, as well as to

escape or pass over obstructions that may be in their path, substantially as herein shown and described.

**2.** The employment of two adjustable plow shares or scrapers, capable of scraping or cultivating both sides of the rows of cotton or other plants by once passing over the ground, when arranged and constructed substantially as set forth.

**29,127. JOSEPH HINMAN**, Water-town, Mass., and **D. S. FRENCH**, Marietta, Ga., assignors to themselves and Nathan King, Middlesex, Mass. Cotton Cultivators. July 10, 1860.

This invention consists in the use of a series of runners or plates provided with cutters, or shares, and attached to a suitable framing at a requisite distance apart, and in such a way that a certain degree of vertical adjustment will be allowed them, and the plants thinned out by the cutters by drawing the implement transversely over the drills in which the plants are growing.

**Claim. 1.** The employment or use of a series of plates B, provided with cutters C, and attached to a frame A, substantially as shown, for the purpose set forth.

**2.** Attaching the cutters C to the plates B, by means of tangs h, secured by set screws in semi-circular bars g, on the plates directly over slots f therein, as and for the purpose specified.

**29,166. JACOB A. HARTSFIELD**, Kinston, N. C. Cotton Cultivators. July 17, 1860.

**Claim.** The arrangement of A, the main frame; A<sup>1</sup> and A<sup>2</sup>, the cross bars; E and E<sup>1</sup>, the scrapers; G, the gear wheels; C, the shaft; D, the chopper; F, the guide pole; H, the handles; B and B<sup>1</sup>, the vertical posts; e and e<sup>1</sup>, the slots; d<sup>1</sup>, the slot in revolving shaft; a<sup>1</sup>, the pinion gear wheel; and F<sup>1</sup>, the hounds; the whole being constructed and combined as described, for the purposes set forth.

**29,413. JESSE SPERR**, Hazlehurst, Miss. Cotton Cultivators. July 31, 1860.

The object of this machine is in the cultivation of cotton and other things that are planted in rows, in that manner known as "drilling," and when the plant is small, from its uses, the rows can be divided and made into hills, leaving the plants to grow in uniformly separated bunches or hills.

**Claim.** The combination of the wheel a, hoe h, and bar l, arranged and operated as or substantially as and for the purpose set forth.

**29,507. JAMES L. MIDDLEBROOKS**, Salem, Ga. Cotton Cultivators. Aug. 7, 1860.

In the operation of this machine the cutters prepare the ground for the plows d d', which follow to turn and loosen the earth; after these

come the revolving hoes, which thoroughly chop the weeds from between the rows of cotton; the plows f f', following in the rear, leave a furrow on each side for drainage.

**Claim.** The revolving hoes a a, secured upon the shaft b, and operated as shown, in combination with cutters c c, and plows d d' and f f'; the whole being constructed and arranged substantially as and for the purpose set forth.

**29,877. W. W. GOLSAN**, Autaugaville, Ala. Cotton Cultivators. Sep. 4, 1860.

A rectangular frame, composed of the parallel longitudinal beams B B, and the transverse end beams C D, forms the main portion of the frame work of this implement. The ends of the hindmost transverse beam D of said frame project a short distance beyond the side beams B B thereof, and those ends are securely combined with the central portion of the uprights F F.

**Claim.** The arrangement of the cultivator point L, and the central driving-wheel A, with the crank shafts a a, the laterally acting hose h h, and the uprights F F, substantially in the manner and for the purpose set forth.

**30,163. J. C. SELLERS**, Woodville, Miss. Cotton Cultivators. Sep. 25, 1860.

This invention consists in the arrangement of a reciprocating hoe frame and cam grooves, in combination with an independent revolving shaft, plow shares, and coverers of a cotton thinning plow.

**Claim.** The arrangement of a reciprocating spring hoe frame N N G, and cam grooves L H, in combination with an independent revolving shaft E, and with the plow shares V V, and coverers U U, of the cotton thinning plow, substantially as and for the purpose set forth.

**30,721. I. W. COLLINS and R. Y. WILKINSON**, Clinton, La. Cotton Scrapers. Nov. 27, 1860.

**Claim. 1.** The arrangement of the hoe wheel E and shaft D with the yielding bar F and spring K, for the purpose of automatically raising the hoe wheel after it has been depressed by the operator, substantially in the manner described.

**2.** In combination with a spring or yielding rotary hoe wheel for thinning cotton; the adjustable and non-yielding mold plows secured to the rear supports of the machine, for the purpose of thinning and molding cotton at one operation, substantially in the manner described.

**31,122. J. D. HOUSTON**, Pope's Depot, Miss. Cotton Scrapers. Jan. 15, 1861.

This invention consists in combining in one frame two rotary hoes and a double scraper, or two scraping wings of a peculiar construction, in such a manner, and in operating them in

such a way, that the cotton plants will be left in hills of a few stalks, and the scrapers will thin out the sides of the hills, while the hoes will thin off the top of the hills.

Claim. The arrangement of the scolloped-edged driver B', pinion C, rotary shaft H, and adjustable rotary hoes G G, with the adjustable scrapers D' D', frame A, wheels B B, and governing handles D D, as shown and described, for the purposes set forth.

**55,607. W. W. BLAIR,** Lebanon, Tenn.  
Cotton Cultivators. June 19, 1866.

The colters and adjustable scrapers are in the advance, and are followed by harrow teeth and cutters which revolve upon a horizontal longitudinal axis to give tilth to a strip whereon to plant.

Claim. 1. The arrangement of the adjustable revolving harrow H with the revolving and adjustable chopping knives J J upon the shaft I, substantially as and for the purpose herein specified.

2. The scrapers M M, pivoted near their inner ends, as represented and adjusted by means of the rods d d, levers e e, and rack-bars g g, substantially as and for the purpose herein fully set forth.

3. The arrangement of the adjustable scraper D D, with the scrapers M M, and the cutters or colters L L, substantially as and for the purpose described.

**57,841. WILLIAM J. ANDREWS,**  
Columbia, Tenn. Cultivators. Sep. 11,  
1866.

A harrow and scraper on one side of the row of plants, and on the other side a knife, making intervals in the row by its reciprocating motion. The gauge determines the penetration of the cultivator devices.

Claim. 1. The harrows g and scrapers N, attached to adjustable frames L, applied to the front part of the framing A, in connection with the reciprocating thinning hoe I, all arranged and applied to a mounted frame in the manner substantially as and for the purpose set forth.

2. The gauge K, applied to the draught pole J, in combination with the lever O, attached to the rear end of the framing and connected with the rear end of the draught pole, substantially as and for the purpose specified.

**60,625. A. K. and B. H. FOSTER,** Hal-  
lettsville, Texas. Cotton Cultivators. Dec.  
18, 1866.

The forward share is divided longitudinally, and the sides are adjustable laterally. The central cutter is within the side cutters, and has a lateral reciprocating movement by means of projections on its sustaining bar, which come in contact with cam bolt-heads on the wheel.

Claim. 1. The share E, composed of two

parts d d, arranged in V-form, with a space e between their front ends, and attached to a standard F and to the front ends of the handles B B, in the manner shown and described, or in an equivalent way, to admit of being adjusted at a greater or less distance apart at their front ends, substantially as shown and described.

2. The reciprocating cutter L, operated from the wheel D through the medium of the screws i and the rock-bar I, provided with the arms p p', in combination with the share H, substantially as and for the purpose specified.

3. The fitting or securing of the screws i to the wheel D by means of the concentric annular grooves c c' in the side of the rim b of said wheel to receive the nuts a of the screws i, whereby the screws may be readily applied to and detached from the wheel and secured at an equal distance apart, substantially aa described.

**61,438. DAVID P. LEWIS,** Huntsville,  
Ala. Cotton Choppers and Thinners. Jan.  
22, 1867.

A cutter with edges on both sides is arranged in a frame capable of vertical adjustment to regulate the depth of cut. The motion of the cutter is imparted from a wheel driven by bevel gears from the axle of the supporting wheels.

Claim. A machine for cutting and thinning cotton and for other purposes, constructed and arranged, and combined substantially as herein shown and described.

**61,845. CHARLES A. McCAGHAN,**  
Moscow, Tenn. Machines for Thinning  
Cotton Plants. Feb. 5, 1867.

Shares suspended from the carriage frame pass on each side of the row of plants. A cutter swings transversely and chops gaps in the rows of plants, leaving them in hills. The cutter is attached by compound levers to the frame, and is operated by gearing and endless chain connection to the driving wheels.

Claim. The double scraper F, attached to suspended frame E, combined with the double transverse cutter g, operated by the swinging frame h, for the purpose of thinning cotton plants in a row at one operation constructed and operating substantially as herein described.

**62,660. W. McCACKEN,** Bainbridge  
Ind. Cotton Cultivators. Mar. 5, 1867.

The share has dovetail projections, which are held between cleats on the mold board. The ground wheel is attached to, and vibratable on, the beam for vertical adjustment. The hoe vibrates laterally by the action of a cam wheel.

Claim. 1. The scraper I, in combination with the plow, the former being placed at the rear of the latter and arranged relatively therewith, substantially as and for the purpose set forth.

2. The connecting of the share F, to the

mold board E, by means of the dovetail arms e, cleats d, and keys c, substantially as described.

3. The manner of attaching the wheel C to the beam, so that it may be adjusted higher or lower to regulate the depth of the penetration of the plow, as set forth.

4. The combination of the hoe O, pivoted rod P, pendant arm i, secured to the colter bar and cam L, operating in the manner and for the purpose specified.

**63,176. KOSCIUSKO PUCKETT,** Parish of Morehouse, La. Cotton Choppers. Mar. 26, 1867.

The chopping hoes are revolved in a transverse plane by a bevel wheel on their shaft, which engages a gear on one of the ground wheels.

Claim. The combination of the driving wheel A, the balance wheel G, pinion B, shaft C, and hoe D, with the frame E, and its appurtenances when their several parts are arranged and constructed as described for the purpose set forth.

**63,246. RICHARD B. HENDERSON.** Warren, Co. N. C. Cotton Cultivators. Mar. 26, 1867.

The machine travels on two wheels between the rows and has an oscillating hoe on each side which are actuated by bevel gearing and rod connections to a crank revolving on a shaft arranged longitudinally of the machine. The action is to chop gaps in the rows and leave the plants in hills. The machine is adjustable in width and has a cultivator in the rear.

Claim. 1. The frame A, running on wheels B, and operating in combination with the hoes substantially as and for the purposes set forth.

2. The crank G, in combination with the handles M and hoes N and O, substantially as and for the purposes set forth.

3. The hoe N, when constructed and operating substantially as and for the purposes set forth.

4. The hoe O, when constructed and operating substantially as and for the purposes set forth.

5. The hoe P, when constructed and operating substantially as and for the purposes set forth.

6. The extension frame H, when constructed and operating substantially as and for the purposes set forth.

7. The cultivator Q, in combination with the machine herein set forth.

**63,451. ROBERT N. ADAMS,** Greenfield, Ohio. Cotton Cultivators. Apr. 2, 1867.

The machine straddles a row and the rotary cultivators operate on each side of it; they are driven by a chain from a drum on the main axle. A transversely oscillating hoe chops

intermittently across the row so as to leave it in hills; the hoe is actuated by levers operated by cams on the inner faces of the driving wheels. In the rear follows a pair of scrapers which draw the soil to the row.

Claim. 1. The rotating hoes in combination with the endless chain and the two pulley wheels B' and c' constructed and arranged substantially as described.

2. The thinner S, in combination with the inclined cogs on the driving wheels, and the intermediate machinery by which a vibrating motion is given to said thinner, substantially as described.

3. In combination with the vibrating thinner and the revolving hoes the scrapers D D, constructed and arranged substantially as described.

**63,767. JOHN ROBERT WALLACE and BENJAMIN A. McCALM,** Murfreesboro, Tenn. Cotton Cultivators. Apr. 9, 1867.

The two shares in front of the machine are attached to pivoted rods which are adjusted by a chain connecting with the frame. They can be raised out of the ground by a lever within reach of the driver. The rear cutter wheel rotating in a plane transverse to the line of motion of the frame, is driven by gearing from the main axle and chops gaps in the row, leaving it in hills.

Claim. The scrapers or shares H arranged or applied to the front part of the machine, so as to be capable of being adjusted higher or lower to penetrate a greater or less depth into the soil, and also capable of being raised entirely therefrom, substantially as set forth.

**64,057. WILLIAM AL TICK,** Dayton, Ohio. Machines for Cultivating Cotton. Apr. 23, 1867.

The clutch rod by the driver's seat brings into action the train of gearing and the wheel to which the adjustable hoes are attached, working transversely of the rows. The plows attached to the transverse metallic bar cultivate between the rows.

Claim. 1. The arrangement of shaft C, with its clutch and bevel wheel, with the pinion T, shaft W, and wheel N, provided with its adjustable hoes, the several parts being constructed and used as and for the purpose specified.

2. Adjusting the arms O O in the wheel N, by means of their grooves and the pins b b, substantially as and for the purpose specified.

3. The bar H, upon which the plows or cultivator teeth are secured, used in connection with the grooved plates a a, rock shaft k, with its arms and lever J, substantially as and for the purpose specified.

**66,128. G. W. CHAMBERS and I. WASHAM,** Talladega, Ala. Cotton Cultivators. June 25, 1867.

Claim. The arrangement of the lever d and

the sliding cross-piece G, to engage and disengage the bevel gear  $b$ ,  $b'$  in the manner and for the purpose herein specified.

**66,895. F. MARION SHIELDS,** Macon, Miss. Cotton Plows or Cultivators. July 16, 1867.

The triangular, convex, side plated hoes are attached by stocks to a horizontal beam, to whose tongue a team is attached.

Claim. 1. The hoes D d d', when constructed in the manner and for the purpose herein described and represented.

2. The combination of the hoes D D D, beam A, shanks or stocks E E, draft tongue or beam B, and handles C C, all arranged substantially in the manner and for the purpose set forth.

3. In combination with the above the fenders F F, applied in the manner and for the purpose set forth.

**67,289. CHARLES GIBBON,** Hicksford, Va. Cotton Cultivators. July 30, 1867.

The rotating axle connects by gearing with the rotating cutters which stir the ground about the plants. The lever raises the hinged frame to which the plows are attached.

Claim. 1. The combination of the front and rear plows H H I I with the hinged main frame A and lever K substantially as and for the purpose specified.

2. The rotary cutters G G, in combination with the scraper plows H H and the rear plows I I, all arranged substantially in the manner as and for the purpose set forth.

3. The pivoted bar M on the frame A, in combination with the rotary cutter shaft F and the lever K, all arranged substantially as and for the purpose specified.

**67,700. JESSE ADAMS,** Clarksville, Texas. Cotton Cultivators. Aug. 13, 1867.

The adjustable hoes are rotated by bevel wheel connections with the axle, and are put out of gear by the hand lever that raises the rear end of the hinged frame.

Claim. 1. The series of adjustable hoes H H attached to and working on the shafts E, substantially as and for the purpose described.

2. The hinged adjustable frame D, in combination with the revolving shaft E, and lever L, substantially as and for the purpose specified.

**72,479. E. H. GOELET and E. B. GOELET,** Goldsborough, N. C. Cotton Cultivators. Dec. 24, 1867.

The outward-turning shares are followed by an oscillating chopper, and that by two shovel plows.

Claim. 1. The arrangement of vibrating knives or hoes g g between the scrapers H H

and the sliding plows J J, in a two-wheel machine, substantially as and for the purposes described.

2. The right and left-hand knives g g formed on or applied to shanks e e, secured together and applied to a rock shaft G, substantially as described.

**74,006. ANDREW RUNSTETLER and ALBERT WINDECK,** Peoria, Ill. Cotton Scrapers and Cutters. Feb. 4, 1868.

The plows are upon pivoted standards, whose tops are connected to a hand lever and are oscillated thereby. The plows are followed by two adjustable revolving choppers.

Claim. 1. The mode, substantially as set forth, of adjusting the scrapers e e, by means of curved irons h h connected with the regulator I.

2. The combination of a driver's seat, the levers M and L for controlling the action of the revolving hoes H H, and the regulator I for controlling the scrapers, substantially as set forth.

**74,519. ZINA DOOLITTLE and A. M. CROWDER,** Houston Factory, Ga. Cotton Cultivators and Choppers. Feb. 18, 1868,

The choppers are upon vertical shafts which are oscillated by connection to a lever whose free end has an antifriction roller acted upon by pins on the side of one of the ground wheels. The lever may be moved by the slide rod out of the course of the pins to throw the choppers out of action.

Claim. 1. The cutters P, connected to vertical arbors I, operated through the media of the levers J J, link L, lever arm M, and pins h, on the wheels B, all constructed and arranged substantially as and for the purpose herein set forth.

2. The scrapers F F and shares G G, in combination with the cutters P P, all constructed and arranged to operate in the manner substantially as and for the purpose specified.

3. The adjustable draught rod E and semi-circular bar D, arranged as shown, for the purpose of adapting the machine for one or two horses.

4. The slide rod Q and lever R, arranged and applied to the device, substantially as and for the purpose set forth.

**77,292. I. J. KIDD,** Young's Settlement, Texas. Cotton Scrapers. Apr. 28, 1868.

The machine is supported on two wheels and straddles the row. The shares are intermittently reciprocated across the row so as to make gaps therein and leave the plants in hills. This is performed by cams on the inner faces of the wheels which actuate rods attached to the share beam, causing it to oscillate transversely and horizontally.

Claim. The cams C C, in combination with the horizontal bars H H, beam L, and plows or scrapers P P, when constructed, arranged, and used substantially as and for the purpose specified.

**77,293. I. J. KIDD,** Young's Settlement, Texas. Cotton Choppers. Apr. 28, 1868.

Motion is communicated from the rotary axle by bevel wheels to a revolving head having oblique cutters which chop gaps in the row of plants as the machine progresses.

Claim. 1. The knives K K, secured to the disks H H and shaft C, when constructed and operated substantially as and for the purpose specified.

2. The arrangement of the shafts or axles B and C, and their cog wheels D and E, disks H H, and knives K K, with the frame A, provided with cross bar h, longitudinal pieces g g, and the plows L L, substantially in the manner as and for the purpose specified.

**78,088. L. HENDERSON,** Manson, N. C. Cotton Cultivators. May 19, 1868.

Antedated May 12, 1868.

Two plowshares are attached to a forward hinged frame, held in working position by a spring-catch, but turned back upon the main frame when not in use. The hoes or thinners are rotated by gearing driven by the main axle, and, as they pass along the row, cut out a portion thereof.

Claim. The adjustable hinged plows E E, in combination with the gear wheels D and E, shaft F, and hoes G and H, constructed substantially as described and operating as and for the purpose set forth.

**88,627. A. J. GOING,** Clinton, La. Cotton-Cultivators. Apr. 6, 1869.

Claim. 1. The scrapers E, when adapted to be adjusted vertically and laterally upon the standards B and horizontal bars C, by means of the vertical slats c, parallel curved slots d d, opening e, bolts b f, and levers f, arranged and operating as herein described, for the purpose specified.

2. The cutter P, adjustably connected to arm i, by means of the slots s u, in the stock O, the screw r, and the projection z, upon the bar I, as herein described, for the purpose specified.

3. The combination of the gearing L M, cam J, vibrating bar I, with its cutter-stock O, the scrapers E E, and truck-wheels g g, all arranged to operate in the manner substantially as and for the purpose specified.

**90,274. FIELDING L. KIRKLEY,** Cleburne, Texas. Combined Plow-Carriers and Cotton Choppers. May 18, 1869.

Claim. 1. The combination of the cotton-chopper m m' n, and n', with the frame A and hangers d e, as and for the purpose described.

2. The slotted and swinging hangers d e, as and for the purpose described.

3. The slotted swinging-hangers d e, in combination with the connecting-rod k and lever l, as and for the purpose specified.

4. The shaft m' of the cotton-chopper, in combination with the lifting-apparatus o r, and for the purpose described.

5. The plow-beams h, each provided with two plows, and made so as to be capable of being readily shifted into or out of the hangers, as described.

**90,734. SAMUEL C. DARREN,** Connersville, Miss. Cotton-Cultivators. June 1, 1869.

Claim. A convertible cotton-cultivator, constructed and operating substantially as herein shown and described; that is to say, with the driving or traction-wheels B B', gear-wheel and pinion D and F, shafts C and D, revolving teeth or harrow G, and choppers H', and triangular harrow I, arranged substantially as and for the purpose set forth.

**94,481. EMILE ENETE,** Catahoula Parish, La. Cotton-Cultivators. Sep. 7, 1869.

Claim. The combination of the barring-off plows F F', and the cutter or knife K, with the covering-plows Y Y', when these parts are constructed, arranged, and operate substantially as described, for the purpose set forth.

**95,422. ISAAC W. BURCH,** Fayette, Miss. Cotton Thinning Machines. Oct. 5, 1869.

Claim. 1. The combination, with the frame A, axle and wheel C, of the vibrating frame H, rotary shaft G, operated as described, and the disk L, either arranged for the application of rotary cutters N' or vibrating cutters, all substantially as specified.

2. The combination, with the frame E and shaft G of the block or frame F, posts E', bar N, arm O, cutter stock and guiding block M, all substantially as specified.

3. The combination with the arm O, disk L, and grooved block M, of the cutter stock and cutters substantially as specified.

**95,651. H. B. CAGE,** Madison Station, Miss. Cotton Choppers and Scrapers. Oct. 12, 1869.

Claim. 1. Attaching the chopper K, and its shaft J, to an ordinary plow beam, by means of the bent arms M M' and screw nuts o o the several parts being combined and arranged substantially as and for the purposes specified.

2. Attaching the scraper N to the standard C by a shank or landside, N', and a bolt n, arranged as set forth, so that by means of a vertical rod, P, and screw nut, p, operating in connection with said parts, as described, the inclination of the scraper can be adjusted at pleasure.

3. The device as a whole, consisting of the beam A, plate G, wheel H, rim I, shaft J, chopper K, arms M M', scraper N, post C, rod P, brace D, handles B B', and round E, all constructed and operating substantially as and for the purposes specified.

**96,562. ROBERT I. DRAUGHTON,** Claiborns, Ala. Cotton Cultivators. Nov. 9, 1869.

Claim. 1. The combination, with the frame A and wheels C of the oscillating frame F, the two sets of rotary cutters S, adjusting shaft M, arms K, L, connecting rods H I, and adjusting catches, substantially as specified.

2. The combination, with the frame A wheels C, of the oscillating frame G, rotary cutters W arranged to work across the rows, the adjusting shaft N, arms and connecting rods substantially as specified.

3. The combination on one frame A, and wheel C of the two sets of cutters S, and the one set W, when arranged on oscillating or adjustable supports, and to act upon both sides of the row, and transversely thereof, substantially as specified.

**97,277. MAJOR E. DAVIS,** Rome, Ga. Combined Revolving Hoes and Cotton-Cultivators. Nov. 30, 1869.

Claim. The herein-described construction of the gear-wheel E F, revolving hoes G, supporting-wheels H, and shares I I', when arranged and combined with the main wheels C, frame B, and shaft D, as specified.

**100,128. JOHN D. DUNN,** Griffin, Ga. Combined Cotton Choppers and Cultivators. Feb. 22, 1870.

Claim. 1. The hoes H H, constructed as described, with a sharp ridge, *a*, running longitudinally in the center, and other ridges *b b*, from the center ridges to the edges, substantially as and for the purposes herein set forth.

2. The wheel D, provided with arms E E, having spaces G G between them, and said arms provided with movable hoes H H, constructed as described, and operating substantially as and for the purposes herein set forth.

**101,962. E. M. GREESON,** Americus, Ga. Cotton-Thinning Machines. Apr. 12, 1870.

Claim. The arrangement of the frames A B and D, adjustable wheel E, and the cutter C, all substantially as specified.

**102,541. WILSON HOLT,** Dawson, Ga. Cotton-Choppers. May 3, 1870.

Claim. The arrangement of the cam-groove c', which actuates the arm of the hoe G, on a boss of the draft-wheel, as shown and described.

**104,154. RUFUS C. HOLT,** Morehouse Parish, La. Cotton-Choppers. June 14, 1870.

Claim. The arrangement of the adjustable standards F F' F'' F''' F''', brace-rods H, cutters G G' G'' G''' G''', frames A B C, hounds J, tongue I, handles K, and wheels D D', when these several parts are constructed, united, and operate as herein described, for the purpose set forth,

**108,159. PETER R. LEATHERMAN,** Woodville, Miss. Cotton-Cultivators. Oct. 11, 1870.

Claim. 1. The scrapers E E and plows G G, arranged in connection with the hinged plates H, so as to be raised above the surface of the ground by means of the cord K, as shown and described.

2. The wheels B C, with inclined faces, arranged to run in the paths formed by the scrapers, substantially as specified.

**108,358. STILLMAN A. JEFFERSON,** Franklin, Tenn. Self-Adjusting Rotary Cotton-Choppers. Oct. 18, 1870.

Claim. 1. The combination of the sliding head-block N, curved guides O, shafts G H, wheel E F, and lever S, all arranged substantially as shown and described, for the purpose specified.

2. The combination of the adjustable gauges R with the bar or yoke Q, sliding head-block N, shaft G, and cutter-wheel or drum E F, substantially as herein shown and described, and for the purpose set forth.

**108,918. JOHN AUGUSTUS LUTZ,** Waynesborough, Va. Cotton-Choppers. Nov. 1, 1870.

Claim. 1. The cutters I I, provided with points f f and flanges h h, in combination with the revolving wheel G, when constructed and arranged to operate substantially as and for the purpose specified.

2. The combination of the lever N, rod M, with arms p r, connecting-rods o s, slotted bar t, rod v w, and collar x, all constructed and arranged substantially as and for the purposes herein set forth.

**109,124. NATHAN M. HALE,** Cleburne, Texas. Cotton-Scrapers and Choppers. Nov. 8, 1870.

Claim. The combination of the frame C, throwing-on plows s s, throwing-off plows i i, and oscillating hoe m, when all these parts are arranged as described.

**110,531. JOHN H. W. YOUNG,** Henderson, Texas. Cotton-Cultivators, Scrapers, and Choppers. Dec. 27, 1870.

Claim. 1. The combination with the frame A and the axle B, of the blocks b b, handles c c, rack-posts p p, lock-bar r, and springs s s, substantially as and for the purpose specified.

2. The scraper-shank, when pivoted to the frame, and provided with a curved slot and set-screw, for the purpose of enabling the

scrapers to be placed at any desired inclination to the line of the draft.

**111,023. DWIGHT F. WELSH,** Nevada, Ohio. Cotton - Choppers. Jan. 17, 1871.

Claim. 1. The shaft E, carrying the choppers or hoes H H, constructed in two parts, and connecting or hinging them, the said parts, together by means of a universal joint, arranged and operating substantially as and for the purpose described.

2. The vertical rod F', supplied with a loop at its lower extremity embracing the shaft E, and a spring f, at its upper end, in combination with the projecting bar or support G fastened to beam D, all arranged and operating substantially as and for the purpose set forth.

3. The handles H H, secured in place on the shaft E by means of the metal plate i<sup>1</sup>, clips or ferrules i<sup>2</sup> i<sup>2</sup>, and shoulder and nut i<sup>3</sup>, arranged to operate in the manner and for the purpose specified.

**111,346. JOSEPH R. HOOD,** Weedo-  
wee, Ala. Cotton-Choppers. Jan. 31, 1871.

Claim. The shaft f, driven by the center traction-wheel e, arranged with the hoe h suspended by wire j to the frame k, whereby the hoe may be adjusted by the driver by inclining the handles, substantially as and for the purpose set forth.

**112,161. CYRUS MARSH,** 2d, Natchez,  
Miss. Corn and Cotton-Scrapers. Feb. 28,  
1871.

Claim. A corn - scraper, consisting of a beam A, wheels H G, adjustable arms C C', scrapers E E' and M, the latter set in motion by the wheel H, through the pinion K, and wheel L, and all constructed and arranged as and for the purpose shown and specified.

**112,209. WILLIAM C. BIBB,** Madison,  
Ga. Combined Cotton - Choppers, and  
Scrapers. Feb. 28, 1871.

Claim. The arrangement of the hoe D, operated as described, with the adjustable scrapers F and adjustable plows E, substantially as and for the purpose set forth.

**112,481. DANIEL MOSELY,** Osark,  
Arkansas. Cotton - Choppers and Grain  
Cultivators. Mar. 7, 1871.

Claim. 1. The arrangement, with each set of three chopper-blocks A A, of the scoops a a, blades b b, and plow d, substantially as shown and described.

2. The arrangement of the adjustable bars J J, runner K, standards L L, and adjustable tongue M, substantially as shown and described.

**113,320 CYRUS MARSH,** 2d, Natchez,  
Miss. Cotton-Scrapers, Hillers, and Culti-  
vators. Apr. 4, 1871.

Claim. The beam A, with its wheels H G, adjustable arms C C', scrapers E E' and O, the latter acted upon by the wheel L, which re-

ceives its motion from the pinion K gearing with the cogs on H, and all combined, constructed, and arranged for joint operation as and for the purpose shown and specified.

**113,640. CHARLES BRYANT DOU-  
GLAS,** Montgomery, Ala. Cotton-Chop-  
pers. Apr. 11, 1871.

Claim. The combination of the frame A, axle F, driving-wheels G G', the latter with an elongated hub, the bevel cog-wheel H sliding upon said elongated hub, the pinion n, shaft m, arms d d, and holes f f, all constructed and arranged as and for the purpose set forth.

**114,889. EDWARD BERRIAM TUR-  
NIPSEED,** Columbia, S. C. Cotton-  
Choppers. May 16, 1871.

Claim. The combination of the cutter B, constructed as described, with curving front edges, laterally - expanding sides, rearwardly-tapering form, and inclined bottom blade with the beam A, the parts being relatively arranged as described.

**116,425. WILLIAM C. GAINES,** Salem,  
assignor to himself and Harvey B. Varnes,  
Manassas, Va. Combined Corn and Cotton  
Cultivators. June 27, 1871.

Claim. The frame with slotted beams H H', laterally adjusted by means of lever S, in combination with rock-shaft O, lever R, and levers N N, whereby the plows can be raised separately or collectively, substantially as set forth.

**118,371. MIREYBEAU B. LAMAR,** Atlanta, Ga. Cotton Cultivators. Aug.  
22, 1871. Antedated Aug. 11, 1871.

Claim. 1. The shifting-wing 16, arms 17, and cranked levers 56, constructed and arranged as described, in combination with plows 15 and angular frame 14, for the purpose set forth.

2. Cuff 22, rod 21, angle-knee 20, curved lever 19, angular frame 14, and curved rack 6, all constructed as described, and arranged relatively one to the other, as set forth.

3. Wheel 2 provided with an annular row of teeth 44, pulleys 26, and 27, shaft and pinion 25, carrying also wheel 51, arranged relatively one to the other, as and for the purpose specified.

4. Curved rack 6, pinion 8, pawl 10, ratchet 9, handle-wheel 11, and slider 7, arranged relatively to each other and to lever 12 and pinion 8, as and for the purposes set forth.

**118,951. FRANK A. LEONHARD,** Co-  
lumbia, Tenn. Cotton-Choppers, Scrapers  
and Cultivators. Sep. 12, 1871.

Claim. 1. The arrangement of the rollers I and scraper J, in connection with the arms F, whereby they are adapted to oscillate, as shown and described.

2. The arrangement of the two sets of rollers

and scrapers J and the vibrating chopper S, in connection with the pivoted frame E, as shown and described.

**119,015. THOMAS DALE,** Russellville, Ky. Cotton-Cultivators. Sep. 19, 1871.

Claim. 1. The combination of the wheels, the axle, the frame arranged above the axle, the stirrups depending from the frame and embracing the axle, the handles rigidly secured to the frame behind the axle, and the plows in rear of the axle, serving as a fulcrum on which to rock the frame, all these members being constructed and operating substantially as set forth, so that the frame, while free to be lifted by the handles, is prevented by the axle from descending below a given point.

2. The combination of the frame, the loops, the axle, and the driving-gear on the axle with a rotary chopper journaled to the frame, and driven by the gear on the axle in such a manner that, when the frame is raised to pass obstructions or to be turned in its path, the chopper will be thrown out of gear and become inoperative, substantially as described.

**119,644. RICHARD H. PRUNELLE,** Beulah, Miss. Cotton-Cultivators. Oct. 3, 1871. Antedated Sep. 23, 1871.

Claim. 1. The arrangement in one machine for cultivating cotton of a barring-off, a, a scraping, c, a cutting-out, p, and a throwing-on mechanism, a', as specified.

2. The combination of the frame A, cutters p, bars q, spring r, cams w, and wheels x, as described.

**120,274. JULIUS W. HATCHER,** Bethsada, Tenn. Cultivators. Oct. 24, 1871.

Claim. In a cotton-chopper, the arrangement of the cam-wheel G H so that its axis is above that of the internally-toothed transporting-wheel C E, the same being geared together, as shown, and the chopper O, rod L, spring K, and arm or rod, all as shown and described, for the purpose specified.

**122,057. ASHLEY G. POWELL,** Smithfield, N. C. Cotton-Choppers. Dec. 19, 1871.

Claim. The combination, with a chopping-knife on the arm G, of a shaft, H, journaled in brackets I L, and having spring-finger k and a ratchet-wheel J, on the driving-shaft of the machine, as and for the purpose set forth.

**122,373. NATHAN EARLYWINE,** Centreville, Iowa., assignor to himself and Charles A. Davis, St. Louis, Mo. Wheel-Cultivators. Jan. 2, 1872.

Claim. 1. The cultivators E E E, fixed in the V-shaped stock F, which is bolted to the pendent bar D so as to be vertically adjustable, as shown and described, and so as to rise and fall with the inequalities of the ground.

2. In combination with the elements of the

first claim, I claim the scrapers W W, when arranged to operate as specified.

**125,811. JAMES M. HARCROW,** Marshall, Tex. Cotton-Choppers and Cultivators. Apr. 16, 1872.

Claim. The plow-beams b and i carrying the plows a and h, the stirrups e and n, crank-shaft g p and m q, connecting-rod r, and the lever s, all constructed, arranged, and operating as shown and described.

**132,015. EBENEZER T. MATTHEWS,** Galveston, Tex. Cotton-Choppers. Oct. 8, 1872.

A slotted wheel carries the cutters, the arms of the cutters being slotted in an opposite direction from the wheel so that they can be adjusted both vertically and horizontally, and the cutter-wheel is attached to a hinged frame.

Claim. 1. The slotted wheel L, slotted arms N, and adjustable hoes or choppers O, in combination with each other and with the shaft K, by which they are driven, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the wheel P and adjustable standard Q with the rear frame H and choppers L N O, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the barring-plows S T and adjustable beams R with the rear frame H and adjustable regulating-wheel P Q, substantially as shown and described, and for the purpose set forth.

**135,726. WILLIAM T. PARKER,** Verona, Miss. Cultivators. Feb. 11, 1873.

The frame which carries the cultivators and chopper is suspended from the main frame, so as to have a swinging lateral motion.

Claim. 1. The vibrating side pieces C C, jointed to cross-pieces D H, and connected with tongue K, as described, and for the purpose set forth.

2. The combination of a chopper shaft, F, with bearing-pieces D H, when the rear one of them has a vertical and elongated slot, as and for the purpose described.

**137,715. WHITMAN PRICE,** Mount Olive, N. C. Cotton-Choppers. Apr. 8, 1873. Filed Oct. 28, 1872.

Claim. 1. In combination with shaft I the flanges z and chopping-hoes e, the flanges being provided with recesses for the reception of the enlarged end of the stems or arms of the hoes, in the manner shown and described, and for the purpose set forth.

2. The shovel-plow r, spring-shoes w, and arms p, in combination with the serrated bar x and key y, substantially as and for the purpose specified.

3. The shaft z and rods r r', in combination with the perforated draw-bar s and tongue t,

substantially as and for the purpose set forth.

**137,959. CORNELIUS F. REAMS,** Raleigh, N. C. Cotton-Cultivators. Apr. 15, 1873. Filed Apr. 4, 1873.

A rectangular frame has within its sides two bearing-wheels, one of which is provided with cog-gears, which give motion to the revolving chopper. The forward barring-off plows, as well as the scrapers which return the soil to the roots of the plants after the chopper has thinned them out, are adjustable laterally.

Claim. The bearing-wheels G G, arranged between the side frames A A and directly in rear of the adjustable scrapers P P, for the object specified, for operation in connection with shaft K, pinion I, hoes L, and the rear hillng plows or wings S S, all arranged substantially as herein shown and described.

**138,363. CLEMON BAILEY, and GEORGE K. BAGBY,** Kinston, N. C. Cotton-Choppers. Apr. 29, 1873. Filed Mar. 8, 1873.

Two bars which are easily applied to an ordinary plow, support the chopper and its operating mechanism.

Claim. The means of holding the wheels G H I and shafts to the beam A, consisting of the bars D D, each fastened on one side of said beam and projecting in the rear thereof, as described.

**138,555. FINIS L. BATES,** Bremond, Tex. Cotton-Cultivators. May 6, 1873. Filed Feb. 21, 1873.

Claim. The spring Q attached at one end to bar G, and connected by a link at the other with the end of hoe-handle, as and for the purpose described.

**138,596. WILLIAM C. TILTON,** Spring Place, Ga., assignor to himself and Henry Disston and Son, Philadelphia, Pa. Cotton-Choppers. May 6, 1873. Filed Nov. 19, 1870.

A revolving shaft provided with a series of adjustable chopping-blades and suspended on a frame.

Claim. The combination of the driving-wheels  $d^2$ , bands or chains f, the revolving adjustable cutters, and adjusting-lever H, substantially as described.

**140,746. JOSEPH B. UNDERWOOD,** Fayetteville, N. C., assignor to Edmund L. Pemberton, John W. Hinsdale, and Mrs. S. C. Underwood, same place. Cotton Choppers and Cultivators. July 8, 1873. Filed Feb. 4, 1873.

The plows are mounted on a frame in the usual manner. The choppers consist of two sets of three knives each, radiating from the lower end of a vertical shaft, two of the knives on each being nearly in a line and the other or about  $90^\circ$ , thus leaving one-half of the circle free. They are caused to rotate in concert,

thus leaving the hills of growing plants as they sweep around just beneath the ground. The shovels and sweep are interchangeable.

Claim. 1. The hinged U-shaped bar D combined with frame A, axle C, and draft-bar E, as and for the purpose described.

2. One or more sets of horizontal chopping-knives, K K K, arranged and applied horizontally, as and for the purpose set forth.

3. The standards J J' M combined and relatively arranged to receive plows and horizontal choppers, as and for the purpose described.

4. The loose pulley Q having notched side flange q, the disk R having notch r' and pawl r, and lever s and the rod T combined with shaft P, as and for the purpose set forth.

**5,741. JOSEPH B. UNDERWOOD,** Fayetteville, N. C., assignor to Edmund L. Pemberton, John W. Hinsdale, and Mrs. S. C. Underwood. Cotton Choppers and Cultivators. Patent 140,746, July 8, 1873. Reissued Jan. 27, 1874. Filed Nov. 1, 1873.

Claim. 1. The hinged U-shaped bar D, combined with frame A, axle C, and draft-bar E, as and for the purposes described.

2. One or more sets of chopping-knives, K K K, arranged and applied as and for the purpose set forth,

3. The standards J J' M, combined and relatively arranged to receive plows and horizontal choppers, as and for the purpose described.

4. The loose pulley Q, having notched side flange q, the disk R, having notch r' and pawl r, the lever s, and the rod T, combined with shaft P, as and for the purpose set forth.

**142,501. EDMUND H. NELSON,** Gainesville, Ala. Cotton-Cultivators. Sep. 2, 1873. Filed Apr. 19, 1873.

A cross-bar is hinged to the frame of the cotton-chopper, and carries two shovels, one made adjustable laterally, and to which the draft-pole is attached.

Claim. In a cotton-cultivator of the character described, the supplemental frame G, linked to the forward end of the main frame and carrying a laterally-adjustable shovel, F, and a fixed shovel, E, the latter standing directly in line with the tread of the single driving-wheel B, all substantially as and for the purpose specified.

**143,997. ALBERT F. RORERTS,** Knoxville, Tenn. Combined Cotton Choppers and Cultivators. Oct. 28, 1873. Filed Mar. 15, 1873.

The plows and chopping-hoe are hinged so as to have a free vertical and lateral movement.

Claim. 1. The cam H provided with the slot X, in combination with the pin e, rods l and K, sleeve f, standard L, and hoe M, when

arranged and operated substantially as shown and described.

**2.** The cam H, pin e, rods l and K, sleeve f, standard L, and hoe M, arranged and operated as shown and described, in combination with the vertical and lateral swinging plows provided with right and left shares, and connected by the bar i, substantially as and for the purposes shown and described.

**144,281. MANSFIELD L. NEARN,** Double Bridges, Tenn. Cotton Choppers and Cultivators. Nov. 4, 1873. Filed Mar. 22, 1873.

The cultivator-shovels are secured to the standards by means of bands passed through slots formed in the shovel-blades.

Claim. The bands *a* passed through slots in the shovels M, and secured in the notches of the standards L, by means of screw bolts, as shown and described.

**145,849. JOHN COSTON,** Bowdon, Ga. Cotton - Choppers. Dec. 23, 1873. Filed July 17, 1873.

The pinion-wheel carries a crank-shaft to which is attached the hinged frame of the choppers, and by which their movement after each stroke is made to describe an ellipse, passing over the tops of the plants.

Claim. **1.** The combination of the wheel C, cog-wheel D, pinion d, crank-shaft E, slotted bar h, and set-screw i with the main frame A, all substantially as set forth.

**2.** The combination of the hoe H, or its equivalent, springs L L', jointed handles G G', crank-shaft E, and bar I, all substantially as and for the purposes herein set forth:

**146,061. JOSEPH M. GARRETT,** Birmingham, Tex. Cotton - Choppers. Dec. 30, 1873. Filed Aug. 16, 1873.

The chopper-knives are geared by belts to the traction-wheels. A tilting frame carries the plows, which are pivoted to hangers depending from the main frame and operated by a compound lever.

Claim. In combination with the frame A, carrying a cotton-chopper operated by belted gearing from the traction - wheel D D', the swinging frame L, plow-standard M, lever N, and connecting-bar h, substantially as specified.

**146,404. HEZEKIAH W. RUMFELT,** South Point, N. C. Combined Plows, Scrapers, and Choppers. Jan. 13, 1874. Filed Nov. 22, 1873.

A plow, scraper, and cotton-chopper, with gearing for revolving the latter, and combined upon one plow-beam.

Claim. The combination of the chopper L L', the following scraper F, and the rear plow D, as and for the purpose described.

**147,844. WILLIAM J. JOHNSON,** Spring Place, Ga. Cotton-Choppers. Feb. 24, 1874. Filed Dec. 20, 1873.

Knives are attached to pivoted arms, which extend from the wheels to the front of the machine on either side. The rear end of the arm forms a pin, which works in an eccentric groove in the bearing-wheels, and, being of irregular depth, the knives are caused to make strokes at intervals, and are then thrown back by springs.

Claim. The combination of the cutters J, levers H, springs K, or equivalent, adjustable pivoting-standards I, and cam-grooves g', in combination with the wheels G and with the frame-work of the machine, substantially as herein shown and described, and for the purpose set forth.

**148,157. JOHN J. WATROUS,** West Point, Ga. Combined Gang-Plows, Cultivators, and Choppers. Mar. 3, 1874. Filed Jan. 5, 1874.

An elevated arch or yoke is mounted upon the main frame, in which a pivoted the front end of a swinging frame, the side pieces of which are the handles. A chopper is mounted upon the axle.

Claim. **1.** The combination of the wheels A, axle B, frame C, bow E, cross-bars F H I, and pivoted handle-frame G, substantially as herein shown and described.

**2.** The combination of the slotted, perforated, and pivoted bar O, perforated cross-bar H, frame C, keeper U, bars T, and plow-beams S, as shown and described.

**149,492. THOMAS E. MARABLE,** Petersburg, Va., assignor of two-thirds his right to Joseph B. Dunn and Starke A. Plummer, same place. Cotton-Choppers. Apr. 7, 1874. Filed Feb. 6, 1874.

The crank reciprocates a horizontal cross-bar carrying a chopping-knife at each end, for thinning two rows at once.

Claim. The reciprocating bar E, having the slotted enlargement F at its center, and provided with the perforations *a a*, for the reception of the standards M of the adjustable cutters L, in combination with the axle K, shaft G, pinions I J, and crank H, substantially as described, and for the purpose set forth.

**149,543. EDWARD H. SUTTON,** Edenton, N. C. Cotton-Cultivators. Apr. 7, 1874. Filed Feb. 17, 1874.

Attached to the plow-beam, with other cultivating devices, is a horizontal blade or cutter, attached to the shoe of a turning standard. The shoe may be turned on the standard, to set the blade at any angle, and, by a finger-lever attached to the plow-handle, opposed by a spring, a motion like shear-blades is imparted to the cutter.

Claim. In a cotton-cultivator, the combination of the lever I, rod K, arm F, spring G, shaft or standard H', and blade H, as and for the purposes described.

**7,955. EDWARD H. SUTTON,** Edenton, N. C. Cotton-Cultivators. Patent 149,543, dated Apr. 7, 1874. Reissued Nov. 20, 1877. Filed Nov. 3, 1877.

Claim. 1. In a cotton cultivator, the combination of the hand lever I, slotted rod h, arm H, spring J, standard G, and cutter G', as and for the purpose described.

2. The combination, in a cultivator, of the wheels B and B', in the line of draft, with the adjustable cutters E'' and F', as and for the purpose described.

3. The combination, in a cultivator, of the wheels B and B', in the line of draft, with an oscillating standard, G, and swinging cutter G', as and for the purposes described.

4. The combination, in a cultivator, of the wheels B and B', in the line of draft, with the adjustable cutters E'' F', and the swinging or oscillating cutter G', as and for the purposes described.

**149,923. CHARLES T. DOLLAHON,** Pitman, Ark. Cotton Scrapers and Thinnings. Apr. 21, 1874. Filed Jan. 10, 1874.

A cotton cultivator, scraper, and chopper is mounted on a triangular frame supported by a single wheel. A reciprocating movement of the chopper is obtained by elbow-lever and crank-shaft geared to the traction-wheel. Spring catches and other devices are provided to hold the chopper in gear or to release it at will.

Claim. 1. The combination and arrangement of beam A, master-wheel B, frame C, cultivators D, scraper E, and chopper F, all substantially as described.

2. The combination, with the chopping mechanism constructed substantially as described, of the bar K, spring-catches N, bars O and P, yoke S, spring T, and guard V, with elbow-lever G and the connecting-rod M, substantially as specified.

**150,448. WILLIAM H. WASH,** Memphis, Tenn., assignor of one-half his right to E. S. Broadbush, Eudora, Ark. Cotton Cultivators. May 5, 1874. Filed July 24, 1873.

The chopper is actuated reciprocally by a crank-shaft working in a vertical slot in a transverse sliding bar. The chopper shaft is pivoted in its center to the same bar, and has a slot in its upper end, which works on a fixed pivot on the frame, and gives sufficient play for the cutting-stroke. The frame is sectional, the front part being lifted by depressing the handles.

Claim. In a cotton-chopper, the knife / with handle i, and vertical arm f with slot g, in combination with the reciprocating slotted

cross piece e, crank d, and pinion-shaft c, substantially as and for the purpose set forth.

**152,069. THEODORE C. BURNHAM,** Waco, Texas. Cotton-Cultivators. June 16, 1874. Filed Dec. 13, 1873.

Circular horizontal cutters, whose edges meet, cut up the row, except the hills left by semicircular openings in said cutters.

Claim. 1. The combination, with the cone-wheel E and axle B, of the block J and bowed connecting-rod l I, as and for the purpose described.

2. The combination, in a cotton-cultivator, of two horizontal circular cutters or hoes, P P, bottom-concaved, and having opposite semi-circular openings, as and for the purpose specified.

3. The combination, in a cultivator, of the rotary hoes or cutters P P, the bar-plows Q Q, and fenders or guards R R, as and for the purpose described.

4. The frame C, having extended and open ends, with bars S, combined with the vibrating frame H, connected by rod I, and having staples T, as and for the purpose set forth.

**152,304. PARKER D. ROBBINS,** Harrellsville, N. C. Cotton-Cultivators. June 23, 1874. Filed May 1, 1874.

The main frame carries the chopper and its gearing. An interior frame, carrying the scrapers and plows, moves up and down freely within it, and may be suspended so that the cultivator shall be above the ground.

Claim. 1. The inner frame A', carrying the cutters or scrapers E and shares g, fitting within and arranged in relation to the main or outer frame A, and its uprights K L and rod M, as described, so that the said inner frame A' may, when required, be vertically raised and suspended from the said rod M, as and for the purposes specified.

2. In combination with the frame A having the handles f, posts K and L, and rod M, the frame A' holding the standards of the cutters and shares, as set forth.

**153,837. KENNETH Mc KINNON,** Pleasant Hill, Ala. Cotton Choppers and Cultivators. Aug. 4, 1874. Filed June 6, 1874.

Claim. 1. The combination of a double-edged chopper, /, having cross-head arms h h, and pivoted to be vibrated vertically across the cotton-ridge, with thrusting levers i i and the carrying-wheels, having pins m, substantially as described, whereby the levers are raised and forcibly depressed upon the cross-head arms to vibrate the chopper at intervals to chop and clean out a space from the ridge of cotton.

2. The combination of the vibrating cross-head arms h h with the spring-catches p, as described, whereby the chopper is held in posi-

tion to be thrust across from one side of the row to the other.

**3.** The combination of the thrusting-levers *i i*, for operating the chopper with the spring-catches *q* and their holding and releasing cords *q' q'*, whereby the action of the levers is arrested, and they are held up out of the range of their operating pins.

**4.** The combination of the thrusting-levers *i i*, for operating the chopper, with the vertical guide-frame *n n* and the springs *k k*, as described, whereby the levers are held in position to receive the action of the lifting pins and to act upon the cross-head arms.

**154,110. GEORGE W. WIMPEE,** Centre, Ala. Cotton Harrows and Choppers. Aug. 11, 1874. Filed May 18, 1874.

The hoe-shaft is supported by a hinged arm, and operated by an eccentric. The shaft of the latter is revolved by a pinion-wheel gearing into a beveled cog-wheel upon the rotary harrow.

**Claim. 1.** The combination of a rotary harrow, *A*, with a pinion, *B*, and eccentric *C*, substantially as and for the purposes described.

**2.** In a cotton-chopper, the concentric *c*, pendent arm *I*, and slotted arm *D*, substantially as and for the purposes described.

**155,945. C. B. HARRISON,** Raleigh, N. C. Choppers and Cultivators. Oct. 13, 1874. Filed Aug. 13, 1874.

The scrapers are hinged to the front part of the frame. In turning they are raised from the ground by projections upon the forward axle.

**Claim.** The scraper shank *O*, hinged in front of bolster *F*, as and for the purpose specified

**156,164. DAVID M. JOHNSON,** Trinity College, N. C. Cotton Cultivators. Oct. 20, 1874. Filed Aug. 17, 1874.

Cams upon the axle of driving wheels operate springs, which alternately throw the cutters to either side where they are held until released and thrown back by the force of the spring.

**Claim. 1.** In a cultivator, the combination of the horizontally reciprocating cutters *F* with springs *H H* and their, operating cams, substantially as shown and described.

**2.** The combination, in a cultivator, of springs *H H*, cams *h* and releasing devices *J j* with the cutters, substantially as shown, for the purpose described.

**159 169. MARCUS EUSTACE,** Highfield, Drumondra, assignor to J. Kennan and Thomas Kennan, Dublin Ireland. Machines for Thinning Crops. Jan. 26, 1875. Filed Dec. 6, 1873.

A series of frames of double runner form, each carrying a hoe, and designed to be drawn across the rows. The shape of the runners

permits the hoes to strike the top of the ridges and raises them over the furrows.

**Claim. 1.** The machine herein described for thinning or spacing root and other crops, consisting of a series of hoe blades *F*, arranged and operating in combination with guides *A<sup>1</sup> A<sup>2</sup>*, substantially as herein before set forth.

**2.** In machines for thinning or spacing root and other crops, the frames *A*, consisting of the trough shaped guides *A<sup>1</sup> A<sup>2</sup>* connecting bar *A<sup>3</sup>* and hoe blade *F*, coupled together in an adjustable manner by means of the transverse rods *B B'* and collars *H*, substantially as hereinbefore described with reference to the accompanying drawings.

**159,436. J. D. MITCHELL,** Dry Creek, Ala. Cotton Choppers. Feb. 2, 1875. Filed Aug. 12, 1874.

The front end of the chopper shaft rests in a sliding bar operated by a lever and crank, which gives vertical and lateral adjustment to the hoes. The rear boxes, of the two shafts are pivoted crosswise to each, which allows the described movement.

**Claim. 1.** The combination, with a revolving hoe, of a carrying head block, *I* capable of lateral adjustment to keep the hoe directly over the cotton ridge as the machine moves forward.

**2.** The combination with a revolving hoe, of a carrying head block *I* capable of both vertical and lateral adjustment for the purpose set forth.

**3.** The combination of the head block *I* for carrying the hoe shaft, and capable of vertical and lateral adjustment, with a lifting or cranked rod *n o o*, and the lifting lever *p*, whereby the hoe is raised and lowered directly by the cranked rod.

**4.** The combination of a revolving hoe having a capacity for vertical and horizontal adjustment, with a combined double bearing, *u v* and the driving shaft *g*, whereby the gearing end of the hoe shaft and its bearing box may have a compound movement to conform to the adjustment of the hoe.

**160,111. WILLIAM H. McC LAUGHLERTY,** Sequin Tex. Cotton Scrapers and Choppers. Feb. 23, 1875. Filed Nov. 14, 1874.

**Claim. 1.** The combination of the clamp *G* with the slotted or grooved end of the small gear wheel, *E*, and with the polygonal section of the chopper shaft *F*, substantially as herein shown and described.

**2.** The combination of the pivoted bearing block *H*, and the vertically adjustable U-shaped bar or slotted bearing *L*, with the adjustable chopper shaft *F* and frame *A*, as and for the purpose described.

**3.** The arm of one of the cross bars *O* that carry the chopper-knives *P*, made in two parts

hunged to each other, and provided with an adjusting swiveled screw, Q, substantially as herein shown and described.

**4.** The combination of the two wheels B' short axle D', pivoted and sliding bent standard E' and foot lever G' H', with the forward part of the frame A, that carries the scrapers and choppers, substantially as herein shown and described.

**160,811.** T. C. BURNHAM, Waco, Tex. Cotton Choppers. Mar. 16, 1875. Filed Aug. 10, 1874.

A vibrating frame is connected by a draft-rod to the main frame. Vertical shafts, carrying horizontal knives, are pivoted on the former, and their bent arms meet above the frame. A forked rod extends forward from the arms, having a roller, which travels in the channeled edge of a wheel, revolving with the main axle. This wheel has irregular projections, which operate the shafts, to open the cutting knives and leave hills. A spring throws them back to position.

Claim. **1.** The combination of the horizontal knives K, the vertical shafts L, having inwardly projecting arms formed upon their upper ends, and the spring R with each other and with the frame G that carries the plows substantially as herein shown and described.

**2.** The combination of the rods or chains N and armed shaft O P Q with the shafts L, forked rod S, and wheel E, and with the frame G, substantially as herein shown and described.

**160,937.** JOHN G. MICKLE and FOUNTAIN F. DEARRING, Fosterville, Tenn. Cotton Choppers. Mar. 16, 1875. Filed Aug. 15, 1874.

A square block is rigidly secured to the axle. In revolving its corners trip a spring lever, which connects with and raises the chopper.

Claim. The combination, in a cotton-chopper and scraper, of the hoe E, the levers, 1, 2, 3, 5, the spring bar 4, and the trip b, all constructed and arranged substantially as described for the purposes specified.

**166,597.** W. D. EVANS, Society Hill, S. C. Cotton Choppers. Aug. 10, 1875. Filed July 1, 1875.

One or more pairs of wheels upon a shaft, with transverse knives upon their circumference. The knives are set at a reverse angle from those designed to spade the earth, and have openings at intervals, being designed to run upon the rows of cotton and chop it to suitable hills.

Claim. In a cotton-chopper, the drums A A and irregularly-spaced transverse cutting-blades C reversely inclined to the center, combined as and for the purpose specified.

**169,185.** THOMAS G. W. McMEEKIN and WM. W. HUNT, Cedartown Ga. Cotton-Choppers. Oct. 26, 1875. Filed July 24, 1875.

A cylinder with two angular cam-grooves, which impart an intermittent motion to two crossed levers. The hoes attached are drawn upon the row, except as thrown out at regular intervals.

Claim. The combination of the cylinder D, having zigzag cam-grooves b, with straight parts b' at the inner angles, and the pivoted levers E working in said cam-grooves, and having the hoe-blades attached to their rear ends, substantially as set forth.

**169,462.** RICHARD L. McCLUNG, La Fayette, Texas. Cotton Scrapers, Choppers, and Cultivators. Nov. 2, 1875. Filed Apr. 3, 1875.

Enlarged axle of bearing-wheels serve as a drum, from which driving-belt extends to chopper-shaft, after passing over pulleys. Scrapers in front of wheels, and cultivator-teeth in rear of chopper.

Claim. The combination of the wheels I, shaft J, band L, guide-pulleys M, cross-bar N, the shaft and arms O P, and hoe or cutter Q, with the frame, and the plow-standards B D, substantially as herein shown and described.

**172,193.** ARTHUR L. SPENCE, Alma, Ark. Combined Scrapers, Choppers, and Dirlers. Jan. 11, 1876. Filed July 24, 1875.

The chopper-bars are slotted to receive a disk, to which they are secured by set-screws, that pass through the bars and press against the face of the disk.

Claim. The chopper-bars D' and wheel C', connected together by one or more screws, d', that pass through the former and against the latter, as and for the purpose specified.

**174,507.** L. EWING, Corning, Ark. Cotton-Scrapers. Mar. 7, 1876. Filed Aug. 7, 1875.

Main wheel laterally movable to throw the chopper-shaft out of gear. The chopper swung upward and held by a crank and spring.

Claim. **1.** In a cotton-scaper, the spring S, in combination with rotating cutter-bearing shaft E, having crank-arm h, substantially as specified.

**2.** The laterally-movable master-wheel C and spring s, in combination with the rotating cutter-bearing shaft E, having pinion c, substantially as specified.

**3.** The vibrating lever H, in combination with a laterally movable master-wheel C, shaft E, and pinion c, substantially as specified.

**180,195.** THEODORE C. BURNHAM, Burnet, Texas. Cotton-Choppers. July 25, 1876. Filed Mar. 25, 1876.

Claim. **1.** The combination of the lever U with the rock-shaft L, rod N, spring-arm O, rock-shaft P, arm Q, and the cam R, substantially as specified.

**2.** The combination of the U-shaped frame

D and vertical frame E with the axle B, chopper-operating devices, and pivoted reach F, as and for the purpose set forth.

**181,211. WILLIAM M. SANDERS,**  
Pontotoc County, Miss. Cotton Choppers and Scrapers. Aug. 15, 1876. Filed Apr. 7, 1876.

Claim. The combination, with the frame A, having cross-bars c c with slots x x, of the plows C C, connected to notched shanks g g, the slotted blocks r r, clasping-balls h h, and metallic plates o o, whereby the plows are laterally and vertically adjustable in front of the chopping-wheel, all substantially as herein set forth.

**184,406. JOHN R. MCCORMICK,**  
Georgetown, Texas. Cotton-Choppers. Nov. 14, 1876. Filed July 31, 1876.

Plow-beams slide back and forth in keepers upon the frame, and the standard-braces being attached to the stationary frame, the plows are thereby raised or lowered by the lever. Chopper revolves upon its shaft.

Claim. 1. The chopper-blade J, pivoted and revolving upon the vertical arm I, as shown and described.

2. The combination of the vibrating chopper I J, vertical bar K, sliding in sockets, arm M, rack-shaft N, and foot-lever O, substantially as shown and described.

3. The combination of the sliding-beams R, and the stationary pivoted braces W Z, with the frame C and the plow-standards U X, substantially as herein shown and described.

**184,783. WM. B. KILLOUGH,** Larissa, Texas. Cultivators and Choppers. Nov. 28, 1876. Filed Oct. 7, 1876.

An inner frame sliding laterally on rods, and moved by a lever and geared shafts. The construction of the standards and mechanism for moving them vertically and laterally. The hoe with double gearing to impart two motions.

Claim. 1. The combination of the wheels A B, the stationary frame C, the rods D, and the sliding frame E with each other, to receive and support the operating mechanism of the machine, substantially as herein shown and described.

2. The combination of the pivoted bars F, the arms G, the shaft H, the bevel-gear wheels I J, the shaft K, and the lever L, with the stationary frame C and the sliding frame E, for guiding and controlling the plows, substantially as herein shown and described.

3. The combination of the hangers M, the adjustable blocks N, the plow-beams O, the plow-standards P, the plow-feet A<sup>1</sup>, the slotted sliding blocks Q, the springs R, the shafts S, the arms T U, the shafts V, the arms W, the connecting-rod X, the lever Y Y', and the catch-bar Z with each other, and with the

sliding frame E, substantially as herein shown and described.

4. The combination of the notched bars C<sup>1</sup> D<sup>1</sup> and the springs E' with the pivoted plow-feet A<sup>1</sup> and the plow-beams O, substantially as herein shown and described.

5. The combination of the pivoted bars G', the pivoted lever H', and the catch-bar I, with the blocks Q, to which the plow-standards are pivoted, and with the shafts S, upon which the said blocks Q slide, substantially as herein shown and described.

6. The combination of the gear-wheels J' K', the shaft L', the bevel-gear wheels P' Q', the shaft R', the crank-wheel T', the bars U' V', the crank-arms and shaft W' Z' X', the spring B', the connecting-bar A<sup>2</sup>, the standard C<sup>2</sup>, and the hoe D<sup>2</sup>, with the bar attached to the shafts S, the sliding frame E, the slotted hanger P', the stationary frame C, and the revolving axle of the wheel B, substantially as herein shown and described.

**185,916. J. H. GILLELAND,** Peak's Hill, Ala. Cotton-Choppers. Jan. 2, 1877. Filed Oct. 14, 1876.

The bearing for the axle of the chopper is formed by two pivoted levers.

Claim. 1. The levers U, pivoted to each other near their lower ends, and together forming a bearing for the chopper-shaft, as shown and described.

2. The combination of levers U, link u', and notched cross bars v', with the wheel S, as and for the purpose set forth.

**186,571. J. N. GARDNER,** Silver Springs, Tenn., assignor to himself and Andrew McClain. Cultivators and Cotton-Choppers. Jan. 23, 1877. Filed June 10, 1876.

Claim. 1. The combination of the levers A', arm D, ratchet-wheel n, pawl p, arm C<sup>4</sup>, and tongue S, as and for the purpose set forth.

2. The combination of short driving-axles C<sup>1</sup> C<sup>1</sup>, provided with radial pins e e, with central axle C, which carries the cotton chopping and scraping devices, and is provided with sliding spring-clutches C<sup>2</sup> C<sup>3</sup>, substantially as described.

3. The combination of the frame, I, spur-wheel H, pinion a, frame J, the adjustably-hinged bars L, carrying the adjustable blocks M, and adjustable scrapers N, and coupling K, substantially as set forth.

4. The combination of the lever O, springs d, chopper R, and dog P, operating, as described, by means of the eccentric pins e e, as and for the purpose set forth.

5. The chopper operated by spring-pressure, and provided with dogs for retaining the chopper until the springs have been drawn to their full tension, as herein set forth.

**188,895. JOHN P. HARRISON,** Aberdeen, Miss. Cotton-Choppers. Mar. 27, 1877. Filed Dec. 23, 1876.

A long beam, provided with hoes at such distances from each other as to leave room for the stand, is supported on the rear side by a spring at each end, and one upon the forward end of the draw-bar. The beam is provided with handles, and, in use, is drawn crosswise of the rows of cotton, the space between the hoes leaving the required stand of plants.

Claim. The combination of the shaft A, the hoes B, the beams D, and the springs H and I with each other, substantially as herein shown and described.

**189,347. J. B. EAVES,** Rutherford County, N. C. Cotton-Choppers. Apr. 10, 1877. Filed Mar. 15, 1877.

The revolving-cutters, having hoes or blades of different widths, are arranged to operate immediately in the rear of rearwardly converging fenders.

Claim. 1. In a cotton-chopper, the combination of the rearwardly-converging fenders or guards N, with the revolving cutters arranged in close proximity thereto, said fenders serving to press together the rows of plants and hold them during the action of the cutters, substantially as shown and described.

2. In a cotton-chopper, the combination of the plows O, the rearwardly-converging guards or fenders N, and the revolving cutters, substantially as shown.

3. A revolving cutter for a cotton-chopper, consisting of a drum or hub, J, provided with detachable radial arms K, and detachable blades or knives L of different widths, arranged as described, so as to allow two or more of said blades to make a continuous unbroken cut equal to the combined width of the said blades, substantially as shown and described, and for the purpose set forth.

**190,815. E. C. L. BRIDGES,** Brick Church, Tenn., assignor to J. A. Lee, same place. Combined Cotton Choppers and Scrapers. May 15, 1877. Filed Apr. 11, 1877.

Claim. 1. The combination of the vibrating frame, carrying the hoes or choppers, and working in guides of frame K, the crank-shaft G, cross-shaft E, ratchets b, and transporting-wheels B, as shown and described.

2. The combination of vibrating chopper-frame C and vertically adjustable frame K, as shown and described.

3. The combination of vibrating frame C, carrying the chopping-hoes, and horizontally-sliding frame L, as shown and described.

4. The combination of vibrating chopper-frame C, vertically-adjustable frame K, and horizontally-sliding frame L, as shown and described.

5. The combination of crank-shaft N, gears k k, rack-bars / /, frame K, and vibrating chopper-frame C, as shown and described.

6. The combination of scraper O, sliding

block P, strap Q, rock-shaft R, and treadle-levers, as shown and described.

**191,219. GEORGE W. BANKS,** Hardin County, Tenn. Cotton-Choppers. May 29, 1877. Filed May 18, 1877.

Claim. The combination of the frame a, supported at its rear end by the gear-wheel c, and at its front end by the wheels b, which are attached to the sash o, the standard r, lever s, and notched standard u, the lever being provided with the two springs t, for the purpose of holding the front of the frame at any desired height, all the parts being arranged to operate substantially as shown.

**193,830. J. F. PRICE,** Lincoln, Tenn. Cotton Harrows and Choppers. Aug. 7, 1877. Filed Nov. 16, 1877.

A wheel is attached to the frame of a cultivator or harrow. On the outer side of the wheel is a series of cams. A hoe with a spring shank is secured to the wheel. As the latter revolves, the cams cause the hoe to be raised and to strike alternately.

Claim. A cotton-chopper composed of the shaft D, the wheel E, having the cams e, and the hoe F, with its spring-shank F', in combination with the standard C of the cultivator-frame, and with the diagonal brace f, substantially as shown and described.

**198,274. S. N. CAMP,** Forksville, La. Cotton-Choppers. Dec. 18, 1877. Filed Oct. 16, 1877.

Two turn-plows, each throwing the soil inward, are placed in the rear of a revolving wheel provided with cups, which are designed to cover the plants that are to be left standing, and protect them from the soil thrown by the plows, while the other plants will be covered by said soil.

Claim. The combination of the slotted uprights G, the axle H, the flanged hub I, the spokes or arms J, and the cups K with the frame A B E F and the standards and plows C D, substantially as shown and described.

**200,327. JOHN MOORE,** Salisbury, Mo. Sod-Cutters and Cotton-Choppers. Feb. 12, 1878. Filed Sep. 27, 1877.

Claim. The combination of the frame A, with clevis B and handles C C, the rotating wheel a D b, the circular cutters G, and the sectional cutters G' G'', all constructed substantially as and for the purposes herein set forth.

**201,240. FRANCIS E. GLOVER,** Reynolds, Ga. Cotton-Choppers. Mar. 12, 1878. Filed Jan. 19, 1878.

Claim. 1. The open cups F, adjustably attached to the spokes of a revolving wheel, mounted in spring-arms and arranged between two plows, for the purposes set forth.

2. The combination of the plow-frame A B

C, the double or U-shaped spring D, wheel E G, and the adjustable open cups F, substantially as and for the purpose set forth.

**201,645. THOMAS J. BROWN,** Fairfield, Tex. Horse-Hoes and Cultivators. Mar. 26, 1878. Filed Jan. 18, 1878.

In front is a circular frame, which rotates freely. It carries the tongue and a pair of scrapers and caster-wheels, the two latter made adjustable. At the rear of the carriage is a frame carrying plows, which is hinged at the rear and lifted at its front by levers. Both sets of the plow-beams slide to or from each other.

Claim. 1. The rotating circular plow-supporting frame D', for supporting the forward plows of the cultivator, in combination with the frame A, as herein shown and described.

2. The rotating frame D', with tongue E rigidly secured thereto, and provided with sliding mortised bars e, for receiving the plow-shanks, and having adjustable caster-wheels i, substantially as herein shown and described.

3. The pivoted frame j, having movable bars m, for supporting the rear plows, in combination with the main frame A, substantially as herein shown and described.

**206,347. WILLIAM MULLENS,** Flat Creek, Tenn. Combined Cotton Choppers and Cultivators. July 23, 1878. Filed Mar. 16, 1878.

A short spring is employed on the rear of the central bar to assist in lifting the chopper. The chopper-rod is bent at right angles at its forward end, and receives motion from the spokes of the wheel. The chopper operates on a block fastened on the central bar, and extending beneath the frame.

Claim. 1. In a combined cotton chopper and cultivator, the combination, with the central beam A, carrying the chopper mechanism, of the lateral side bars B, having cultivating-shovels, and flexibly jointed at their ends to the beam A, substantially as specified.

2. The combination, with the beam A, having the chopper mechanism thereon, of the diverging side bars B, flexibly jointed thereto, their overlapping end pieces C, and a pivot-bolt, d, substantially as specified.

**206,871. RICHARD F. GIBSON, and RICHARD P. McDANIEL,** Tuscaloosa, County, Ala. Combined Cotton Scrapers and Choppers. Aug. 13, 1878. Filed July 15, 1878.

Claim. 1. In a combined cotton chopper and scraper, the combination of the laterally-adjustable plow-beams carrying the scrapers, the vertically adjustable drags, a horizontally, vertically, and laterally adjustable rotary chopper and its driving-pinion, the laterally-adjustable drive-wheels, and a correspondingly-adjustable toothed ring, all constructed and operating as and for the purposes set forth.

2. In a cotton-chopper, an adjustable toothed ring adapted for adjustment upon and to and from the spokes of one of the drive-wheels, substantially as described, for the purpose specified.

3. The toothed ring C', provided upon its inner periphery with the ears e<sup>1</sup>, having segmental slots e<sup>2</sup>, and upon its rear face with stepped projections e<sup>3</sup>, substantially as described, for the purpose specified.

4. In a cotton-chopper, the combination of a pair of drive-wheels laterally adjustable upon their axle, an arched frame carrying a rotating chopper-shaft, also adjustable laterally upon the drive-wheel axle and carrying a bevel-pinion, and a toothed ring adapted to mesh with said beveled pinion, said toothed ring being also adjustable upon the spokes or arms of one of the drive-wheels, so as to maintain said pinion and gear-wheel or ring in gear when the drive-wheels are moved toward or from each other, as described, for the purpose specified.

5. In a combined cotton chopper and scraper, the combination, with the drive-wheels of the former, of a pair of scrapers followed by a pair of drags upon a line with that of said drive or ground wheels of the chopper, substantially as described, for the purpose specified.

6. The combination, with the chopper D, of the drags M M' and the scrapers p p', all constructed, arranged, and operating substantially as described, for the purpose specified.

7. The combination, with the plow-beams H H' and the chopper-frame B, of the brace-shaft K, the nuts k k', the slotted bar L, coupling-hook l<sup>1</sup>, and eyebolt G, all constructed and operating as and for the purposes specified.

8. The combination of the plow-beams H H', the brace-shaft K, and nuts k k' with the drive-wheels A A', axle a, and washers a<sup>1</sup> a<sup>2</sup>, substantially as and for the purposes specified.

9. The combination of the plow-beams H H', the shaft K, and nuts k k' with the drive-wheels A A', axle a, washers a<sup>1</sup> a<sup>2</sup>, adjustable toothed ring C', chopper-frame B, shaft C, pinion c, and chopper D, all arranged and operating substantially as and for the purposes specified.

**210,574. CHAUNCEY A. SPRAGUE and JOHN W. CLARDY,** Weaver's Station, Ala. Cotton Choppers and Rakes. Dec. 3, 1878. Filed Oct. 30, 1878.

Claim. In a cotton-chopper, the combination of the roller having the two sets or series of pins c c, alternating in position, as specified, and arm D, having its free end forked, as shown, the rock-shaft B, a vertically-slotted crank-arm, the bent hoe-shank, and the nut and washer for clamping the same in any adjustment on said arm, as set forth.

**211,760. JOHN W. McMILLAN**, Brookhaven, Miss. Combined Choppers and Cultivators. Jan. 28, 1879. Filed May 29, 1878.

Claim. The combination of the four bevel-gear wheels T U V W, the three-armed lever E', the connecting-bar F', and the lever G' with the wheels and axle A B and the crank-shaft X, that carries and operates the choppers Z A', substantially as herein shown and described.

**213,489. WILLEY T. YOUNG, and WILLIAM T. MOODY**, Walnut Grove, Ala. Cotton-Choppers. Mar. 18, 1879. Filed Jan. 11, 1879.

Claim. 1. In a cotton-chopper, the combination of the beam A, supported on the wheels E E, provided with the vertically-adjustable slotted standards D D, with the draft-beam F and the slotted and perforated angle-iron H, carrying vertically-adjustable castor-wheel J K L, substantially as and for the purpose set forth.

2. In a cotton-chopper, the combination of the slotted beam A a a' with the laterally-adjustable curved shanks D' and the laterally-adjustable guards O O', substantially as and for the purpose set forth.

**216,825. ISAAC F. BOBO**, County Line, Tenn. Cotton-Choppers. June 24, 1879. Filed Apr. 18, 1879.

Claim. 1. In a cotton-chopper, the combination, substantially as hereinbefore described, of the cultivators D, arranged in rear of the revolving chopper, and the scrapers E, arranged in front of the chopper, the shanks of said cultivators and scrapers being provided with recesses upon their faces, to engage with stops or projections upon the faces of sleeves mounted on the shafts i g, in combination with the operating mechanism, substantially as described, whereby the cultivators and scrapers have a limited free movement and are operated simultaneously.

2. The cultivators and scrapers D E, formed with recesses upon one of the faces of their shanks, and held upon their axles between sleeves having stops upon their faces, substantially as shown, whereby the cultivators and scrapers have a limited free movement, as and for the purpose set forth.

**218,387. RICHARD L. LEE**, Plattsburg, Miss. Cotton-Choppers. Aug. 12, 1879. Filed June 19, 1879.

A double-jointed standard provided with springs adapted to hold the standard in place under ordinary conditions, and allow it to yield laterally or rearwardly upon meeting an obstruction, combined with a rock-shaft and its operating mechanism.

Claim. In a cotton-chopper, the rocking shaft o' and its operating mechanism, in combination with the arm n, prongs o, provided with springs, the standard r, jointed at its up-

per end and provided with the joint s, and spring t, substantially as shown.

**221,106. WM. W. SAULS**, Denison, Texas. Cotton-Choppers. Oct. 29, 1879. Filed Apr. 28, 1879.

Claim. In a cotton-chopper, the combination of the lever I, standard J, wedge-shaped block H, and the transporting and driving wheel C, having gearing D, with the frame A, constructed with a recess or slot opposite the periphery of the wheel to receive said block substantially as and for the purpose specified.

**221,608. JOSEPH P. PRAIRIE**, Raleigh, N. C. Combined Cotton-Choppers and Cultivators. Nov. 11, 1879. Filed Mar. 19, 1879.

Claim. 1. The combination of the arched choppers K, the radial shafts, the bevel-gear wheels L, and the segmental gear-wheel M with the revolving wheel or wheels E and the stationary shaft D, substantially as herein shown and described.

2. The fenders formed of the plates H, having their middle parts cut away, and their front and rear edges bent outward or flanged, in combination with the wheel or wheels E and the revolving choppers K, substantially as shown and described.

3. The combination of the connecting-rods N, the levers O, the connecting-rods P, and the upright lever Q with each other, and with the frame A, the hub of the segmental gear-wheels M, and the pivoted brace S, for throwing the said segmental gear-wheels M into and out of gear with the gear-wheels L of the chopper-shafts J, substantially as herein shown and described.

**221,684. PAUL OLIVIER-LECQ**, Templeuve, France. Weeders or Scrapers. Nov. 18, 1879. Filed Sep. 12, 1879.

The axle has cross-arms and a curved slotted quadrant. The whole is turned by a lever. Studs in the frame run in the slotted quadrant and elevate or lower the frame.

Claim. 1. In a weeder and scraper, the combination of the frame A, mounted on the rod C, the links D D, hung on the rod C, the axle E, mounted in bearings in the links D D, the lever e, arranged to play in the guides f, the ground-wheels, the gears I J, the shafts K, and the weeders L, all constructed and arranged to operate substantially as set forth.

2. The combination of the frame A, mounted on the shaft C, and slotted at its rear ends, the axle E, provided with bearings in the links D D, the said links hung on shaft C, and provided with curved extremities c c, the tie-rod d, and lever e, all arranged substantially as set forth.

**222,255. SAMUEL A. DE FORCE** and **WILLIAM V. McCONNELL**, Crockett, Texas. Cotton Scrapers, Choppers, and Dirlers. Dec. 2, 1879. Filed Sep. 22, 1879.

Two bars pivoted to the arched axle extend rearward and carry the shaft of two roller-wheels with cutting-flanges. To this shaft is pivoted another bail extending farther to the rear, which carries scrapers, plows, and a chopper-shaft. The latter is rotated by gearing upon the flanged wheels. A lever and rock-shaft lift the two cranks by chains branching to each.

**Claim. 1.** In a cotton-chopper, the combination, with the frame and axle, of the pivoted arms E, shaft F, wheels G, having flanged cutters H, chains R, rock-shaft S T, and lever V, as shown and described.

**2.** The axle B, pivoted arms E, and cutting-wheels G, in combination with the bent bar or bail I, pivoted to said arms and carrying scrapers K, chopper O, and plows P, as shown and described.

**223,488. CHARLES C. DAVIS, and ALFRED G. DAVIS, Smith's Ford, S. C. Cotton Choppers and Cultivators. Jan. 13, 1880. Filed Nov. 22, 1879.**

**Claim. 1.** In a cotton-chopper, the combination of the frame *a*, the curved arm or lever *g*, pivoted in the front of the frame and extending back over the top of the axle, and axle *d*, provided with tappets and driving-wheels, substantially as shown.

**2.** The combination of the triangular frame *a*, curved lever or arm *g*, that extends back over the top of the axle and is operated thereby, and a spring, *h*, to force the rear end of the arm downward after having been raised by the axle, substantially as described.

**3.** In a cotton-chopper, the combination of the two wheels *c*, secured upon the same axle, the two wheels being made convex on their inner sides, so as to pack the drill between them, substantially as set forth.

**4.** In a cotton-chopper, the combination of the two wheels *c*, secured upon the same axle, the two wheels being made convex on their inner sides, so as to pack the drill between them, and provided with cutting-flanges *n*, substantially as specified.

**224,645. JAMES B. CARSON, Griffin, Ga. Cotton-Choppers. Feb. 17, 1880. Filed Nov. 25, 1879.**

The teeth of the frame are designed to loosen the earth upon either side of the cotton-ridge, while the teeth of the revolving wheel operate upon the row itself to loosen the surface soil.

**Claim.** In a combined harrow, cultivator, and cotton-chopper, the combination of the V-shaped frame A, having teeth *i*, axle C, with pinion *a*, shaft E, with pinion *b*, and wheel G, provided with the radially-adjustable teeth I and hoes F, as and for the purposes herein set forth.

**225,411. WILLIAM S. NEAL, Perdue Hill, Ala. Combined Cotton Choppers and Cultivators. Mar. 9, 1880. Filed Nov. 13, 1879.**

Scraper-standards pivoted having braces which hook over the front beam and are held down by a spring. By a cord the springs may be drawn back from engagement and the standards lifted by a lever. Handles lock around the frame-bar and adjust laterally.

**Claim. 1.** In a cotton-chopper and cultivator, the combination, with the cross-bar of the frame D, of the handles *j*, bent into U form at their lower ends, and the slotted bolts *e*, substantially as herein shown and described, whereby the handles may be adjusted laterally, as set forth.

**2.** In a cotton chopper and cultivator, the combination, with the adjustable bars J, the upright frames W, and the standards Q, of the hook-braces T and the spring-catches X, substantially as herein shown and described, so that the plows S can be adjusted vertically as set forth.

**3.** In a cotton chopper and cultivator, the combination, with the hook-braces T, the plow-standards Q, and the spring-catches X, of the cords Y *a* and the levers Z, substantially as herein shown and described, for raising the barring-off plows S from the ground, as set forth.

**225,856. JAMES B. NICHOLS, Evening Shade, Ark. Cotton Choppers and Cultivators. Mar. 23, 1880. Filed Jan. 28, 1880.**

Pins in rear of the choppers. Riding attachment hooks on behind. Caster-wheels on rear end of main frame.

**Claim.** In a cotton-chopper, the combination, with the disk G and a mechanism operating the same, of the adjustable standards *f*, having downwardly-curving blades *g* attached to the ends of said standards, and the rake-pins *h*, projecting from said standards behind the plates *g*, all constructed and arranged to operate as shown and described.

**225,890. JOHN T. SUSTAIRE, Matthews, N. C. Cotton Choppers. Mar. 23, 1880. Filed Dec. 8, 1879.**

A gang of hoes on each side operated by cranks geared to pinions on main axle and thinning the first and third rows, the machine spanning the intermediate row. The hoe shafts pass through guide openings in a longitudinal bar suspended below the frame and vertically adjusted by a lever to gage the depth of cut. Teeth or shovels follow, attached to guide frame and crank lever.

**Claim. 1.** In a cotton chopper, the combination, with the wheeled-frame, the crank-shafts, and the sets or gangs of hoes attached thereto, of the slotted bars serving as guides and filera for said hoes, the rods *d*, pendent

from said frame, and the crank lever rod and adjusting and locking bar, as shown and described.

**2.** In a cotton-chopper, the combination, with the sets or gangs of hoes, of plows or shovels L, attached to vertically sliding frames or bars M, and the supporting guides N, in which the said frames slide, as shown and described.

**3.** In a cotton-chopper, the combination of the adjustable plows or shares L, with the frames N, provided with a row of holes at the lower edge and arranged to slide vertically in the supporting guide N, as shown and described.

**226,703. LORENZO D. BOWMAN,** Beebe Station, Ark. Combined Cotton Scrapers and Choppers. Apr. 20, 1880. Filed Nov. 25, 1879.

A curved side beam carrying scrapers and connected at its forward end with an operating lever is pivoted at its rear end to the outer end of a curved rear beam supporting a chopper and also connected, with an operating lever, both levers being within reach of the driver upon his seat, whereby the implements may be readily controlled.

Claim. The combination, with the carriage frame, of the curved side and rear beams, having their ends pivoted together, and carrying, respectively, the side scrapers and rear chopper, and each connected with an operating hand lever, as and for the purpose specified.

**227,864. JOHN WARREN,** Newton, Factory, Ga. Cotton Choppers. May 18, 1880. Filed Mar. 22, 1880.

Cutting-bars in pairs having upturned cutting ends connected by horizontal knives; to be drawn across the drills.

Claim. The combination, with the curved bars C, of the blades D, having their cutting ends turned upward, the horizontal blade E, and the bar B, with slots f, f, whereby provision is made for the lateral adjustability of the blades, as specified.

**227,879. WILLIAM BUSCH,** Schulenburg, Tex. Cotton Choppers. May 15, 1880. Filed Mar. 6, 1880.

One set of choppers revolving within the other in the same track but in opposite direction. Clutch mechanism for throwing in and out of gear.

Claim. **1.** In a cotton chopper and cultivator, the combination of two sets of knives, one of which revolves within the track of the other and in an opposite direction, the knives being geared to pass each other at the ground so they will chop at the same time, substantially as shown.

**2.** In a cotton chopper and cultivator, the combination of one or more sets of revolving knives and a mechanism for moving them in opposite directions with the clutch bars X, for

locking the knives in position above the ground substantially as described.

**3.** In a cotton chopper, the combination of the shaft Z', having the pinion Y upon its front end and a wheel, C', on its rear one, the clutch bars X, clutches O', intermediate pinions, F', and cutters or knives which revolve in opposite directions, each set of knives being secured to a gear wheel, C', substantially as set forth.

**4.** The combination of the sleeves O', gear-wheels C', springs H', and chopper arms, the choppers being made to revolve in opposite directions, substantially as specified.

**228,653. JOHN C. LEE,** Ladonia, Tex. Rotary Cotton Choppers. June 8, 1880. Filed Sep. 13, 1879.

The rotary chopper frame is hinged to the axle, is elevated by a lever, and, whether up or down, its pinions engage with the geared bearing wheels. Crank screws bear against arms upon the chopper frame to regulate the depth of the rotary knives, and a spring holds them down to work.

Claim. The combination, with the sulky frame having the gears f, adjusting screws h, and catch p, of the swinging frame b, having the shaft c, pinions e, drums d, and levers m and n, and the spring g, all as described, and for the purpose set forth.

**229,194. JOSEPH H. SMITH,** Marlborough, Tenn. Cultivators. June 22, 1880. Filed Nov. 4, 1869.

Claim. The slotted frame A, cut away to form arcs a on each side of its slots, in combination with the cultivator-standards pivoted in the slots by the bolts b and provided with the curved shoulders a', cross-rods E, having the upturned arms e, independent rods f, each connected with an arm and a standard, lever E', and spring G, having the offset g, the whole constructed, arranged, and operated in the manner and for the purpose set forth.

**231,083. WILLIAM G. PATTON,** Parks Station, Tenn. Cotton-Choppers. Aug. 10, 1880. Filed May 19, 1880.

The chopper arms or levers are arranged in pairs and actuated by a cam and springs. When one set of arms passes over the shoulders of the cam to the feather part the springs come into action and throw the shovels apart, whereby the desired chopping is effected. The axle and cam are stationary.

Claim. **1.** In combination with the spokes J J of the main wheels, the cross-bars K to which are pivoted the chopper-carrying levers L, as and for the purpose described.

**2.** In combination with the non-rotating-axle E, having secured thereto the cam H, the crossed chopper-carrying levers L and their springs N, as and for the purpose described.

**233,241. FRANCIS A. HALL and NATHANIEL B. MILTON,** Monroe, La., assignor of one-third of their right to David Steinau. Combined Scrapers, Choppers, and Dritters. Oct. 12, 1880. Filed July 9, 1880.

The vibrating hoe-shaft works in a grooved hanger, and is raised or lowered to adjust depth of cut by a lever and connecting-rod.

Claim. 1. The combination with the oscillating bar G, grooved on its side edges, of the arched bridge-bar H, the longitudinally-slotted lever I, and the hoe J, as shown and described.

2. In a combined scraper, chopper, and dritter, the combination, with the slotted lever I, carrying the hoe J, of the pivoted rod K, the lever L, and the catch-bar N, substantially as herein shown and described, whereby the chopping-hoe can be adjusted and held, as set forth.

**233,546. JOSEPH G. RAWES,** Wilson, N. C. Spiral Cotton-Choppers. Oct. 19, 1880. Filed July 17, 1880.

Claim. 1. In a cotton-chopper or cultivator, a rotating shaft placed at a right angle to the axle of the driving-wheels and having upon it two or more series of spirally-arranged hoes or cutters, substantially as and for the purpose set forth.

2. In a cotton-chopper or cultivator, the tilting and laterally-adjustable frame C, arranged within an outer frame, and adapted, by its lateral movement, to move the wheel F' into and out of mesh with wheel F<sup>2</sup>, as described, and by its tilting movement to regulate the depth to which the hoes shall enter the earth in their rotation, substantially as set forth.

3. In a cotton-chopper or cultivator, the combination of a tilting and laterally-adjustable shaft, one or more series of spirally-arranged hoes or cutters, and an adjustable bearing or yoke at the forward end of said shaft for controlling the depth which said hoes or cutters shall enter the earth while in operation, the parts being arranged for operation substantially as set forth.

4. The combination of the scrapers or cutters K, carried upon the main frame of the machine, for barring off the ground, and the scrapers L, carried upon the tilting and laterally-adjustable frame C, for placing earth around the standing plants, as set forth.

5. The combination of the main frame of a cotton-chopper or cultivator and a tilting and laterally-adjustable frame C, the tilting and laterally-adjustable movements of which are independent of said main frame, as shown.

6. The combination, in a cotton chopper or cultivator, of driving or carrying wheels A, frame B', driving shaft B, gear wheels F' and F<sup>2</sup>, an laterally adjustable frame C, the parts being arranged for joint operation substantially as described.

7. The combination of lever F, carrying a wedge or cam shaped projection, the laterally adjustable and titling frame C, driving wheel shaft B, and spiral spring F<sup>4</sup>, the parts being arranged substantially as described, for throwing the driving gears into and out of mesh with each other.

8. In combination with guiding or caster wheels of a cotton chopper or cultivator and their axle, a vertical shaft H<sup>3</sup>, horizontal notched arm H<sup>4</sup>, and a sliding rod or bar I, extending to or beyond the rear end of the machine, and having a projection, I<sup>2</sup>, for locking the guiding wheels in position, the arrangement of parts being as described, whereby the operator can lock and unlock the said wheels while walking in the rear of the machine, as set forth.

**234,023. JAMES W. GILBERT,** Hoboken, Ala. Cultivators and Cotton Choppers. Nov. 2, 1880. Filed Mar. 8, 1880.

Claim 1. In a combined cultivator and cotton chopper, the combination, with the frame A carrying the plows and the axles I, carrying the drive wheels K, of the hinged bars E, bolts G, and the guide plates F, substantially as herein shown and described, whereby the plows may be raised from the ground as set forth.

2. In a combined cultivator and cotton chopper, the combination, with chopper shaft N, and the arms P, carrying the hoes Q, of the brace block, R, the key S, and the set screw T, substantially as herein shown and described, whereby the hoe arms are connected with the shaft and allowed to turn back should the hoes strike an obstruction, as set forth.

3. In a combined cultivator and cotton chopper, the combination with handle standards D the slotted side bars of the frame A, carrying the plows, and the hinged bars E, carrying the drive wheel axles, of the arched lever *a*, the connecting bars *b*, and the bent lever *c*, substantially as herein shown and described, whereby the frame A, can be raised, as set forth.

4. In a combined cultivator and cotton chopper, the combination, with the arched lever *a*, that raises the frame A, and the lever U, that slides the shaft N, of the crank rod Y Z and the half keeper X, whereby the plows can be raised and the chopper thrown out of gear by a single movement of the lever *a* as set forth.

**234,219. BERRYMAN S. ALLEN,** Hurricane Switch Station, assignor to John T. Allen, Pulaski, Tenn. Cotton Choppers. Nov. 9, 1880. Filed June 15, 1880.

Claim. 1. In a cotton stalk chopper, the combination of the secondary frame, supported by the shaft and wheels, as set forth, the main frame, hung to the secondary frame at *B*<sup>2</sup>, the adjusting standards *a*<sup>3</sup>, and the cross bolt D, substantially as described.

**2.** In a cotton stalk chopper, the combination, with the main frame A, having the standards  $a^2$   $a^3$  of the secondary frame consisting of the longitudinal timbers  $b^2$  and cross timbers  $b'$ , and adapted to receive and accommodate the trundle head shaft, substantially as described.

**3.** In a cotton stalk chopper, the trundle head consisting of the two plates provided with radial slots, and having the adjustable cross bars, substantially as described.

**4.** In a cotton stalk chopper the combination of the knife frame the rock lever, and the trundle head having the radially adjustable cross bars substantially as described.

**5.** In a cotton stalk chopper the combination of the trundle head having the radially adjustable cross bars and the rock lever having the adjustable pivot, substantially as described.

**237,200. JOHN A. MOORE,** Woodville, Tenn. Combined Cotton Scrapers Choppers and Cultivators. Feb. 1, 1880. Filed Nov. 8, 1880.

Claim. In a cotton-chopper, the horizontal lever K, fulcrumed at its rear end to the cross-bar of frame C, having a front slot and provided with a median pin operated in a cam-groove of axle-drum H, in combination with the middle-pivoted chopper L N, as and for the purpose specified.

**237,502. ROBERT I. DRAUGHON,** Perdue Hill, assignor to himself and R. Cunningham, Claiborne, Ala. Cotton-Choppers. Feb. 8, 1881. Filed Nov. 9, 1880.

Claim. The ground-wheel D, rotating in a slot of the standard C, and connected by gear F G with a chopper-shaft journaled in the standard-bracket I, as shown and described.

**237,931. EDWARD P. TYSON,** Philadelphia, Pa. Cotton-Choppers. Feb. 15, 1881. Filed Aug. 16, 1880.

Claim. **1.** The combination of the frame of the machine having a fixed fulcrum-pin, n, and shaft i, with crank m, means for rotating said shaft i, a chopping-blade, M, and a bar, K, carrying at its lower end the said blade M, connected at the upper end to the pin of the crank m, and slotted between the ends for adaptation to the fixed fulcrum-pin n, as set forth.

**2.** The combination of the bar K, the centrally-pivoted chopping-blade M, the slotted segmental bar x, the rods w, whereby the opposite ends of said bar are connected to the opposite ends of the blade, and the confining-bolt x', whereby the bar x and blade M are confined in any longitudinal position to which they may be adjusted, as set forth.

**3.** The combination of the bar K, having a segmental projection, s, the slotted segmental socket z, adapted thereto, the blade M, pivoted to said socket, the slotted segmental bar x and

rods w, the pivoting-bolt s' of the socket, and the confining-bolts x'' and x', as specified.

**238,028. BURWELL J. CURRY,** Huntsville, Ala. Cotton-Choppers and Scrapers. Feb. 22, 1881. Filed Jan. 5, 1881.

Knives suspended with inclination forward and an eccentric-connection with the geared driving-wheel are given a vibratory thrust or forward-and-back motion. The hopper-stocks rock upon an eccentrically-pivoted cross-bar.

Claim. **1.** In a cotton-chopping machine, the combination of longitudinally-vibrating blades G G, stocks H, cross-beam L, cross-bar J, shaft or rod K, with pitman M, eccentric-wheel N, and pinion F, substantially as described.

**2.** In cotton-chopping machines, the combination of blades G G, stock H, shaft or rod K, pitman M, and eccentric-wheel N, as substantially set forth and described.

**238,183. LORENZO W. TRUE,** Montgomery, Ala., assignor of one-half to Harvey A. Wilson, same place. Cotton-Choppers. Feb. 22, 1881. Filed Oct. 16, 1880.

To the cross-bar of the frame the drag-bars are pivoted. Their rear ends have vertical play in loops on the axle of the rear frame. This rear frame rests upon truck-wheels, and has connecting-bars hinged upon the main frame, so that it may adapt itself to the unevenness of the ground. It has various-shaped blades to cultivate or run across rows of cotton.

Claim. **1.** In a cotton-chopper, the front section, A, having the finger-bars H attached thereto, in combination with the rear section, B, supporting the rear ends of said finger-bars, the two sections being hinged together, substantially as and for the purposes set forth.

**2.** In a cotton-chopper, the combination, with the section A and the rear section, B, hinged thereto, of the pivoted finger-bars H, passed between the uprights b, and provided with the choppers h' and colters g, of the rod I and levers P, constructed and operating substantially as and for the purposes set forth.

**239,176. SAMUEL M. LOVE,** Minneapolis, Minn., assignor of one-half to Martin L. Ludwig, same place. Combined Cultivators and Cotton-Choppers. Mar. 22, 1881. Filed Dec. 22, 1880.

A reciprocating chopper is supported by small wheels and frame, and are hinged by a system of bars to a hanger from the main frame, one of which carries a pin running in the groove of a cam-wheel. The connecting arch of the drag-bars is formed of a shaft in two cogged parts carrying a lever and lifting-rods in staples of the bars. A crank-pinion runs the shaft-sections and the drag-bars to or from each other. Beam-hangers curve upward away from each other.

Claim. **1.** In a cotton-chopper, the combi-

nation, with a cutter adapted to be vibrated at right angles to the rows and held stationary at one side at regular intervals, whereby a portion of the plants may be cut off and a portion left standing at equal distances apart, of a frame, M', carrying the toothed wheels M<sup>2</sup> M<sup>3</sup>, the pivoted connecting-bar h', and hanger K, whereby the cutter-frame is held in place and made to travel in a line parallel with the rows of cotton and not be affected by the vibrations of the cutter, as set forth.

2. The combination and arrangement of the grooved cam N' i' i<sup>2</sup>, rods h' h<sup>2</sup> h<sup>3</sup>, hangers K g' g<sup>2</sup>, standard h<sup>4</sup>, cutter h<sup>5</sup>, frame M', and wheels M<sup>2</sup> M<sup>3</sup>, substantially as set forth.

3. The combination and arrangement, with the cam N' i' i<sup>2</sup> rods h' h<sup>2</sup> h<sup>3</sup>, standard h<sup>4</sup>, and cutter h<sup>5</sup>, of the cultivator E' E<sup>2</sup>, substantially as set forth.

4. The combination, with the cultivator-bars E' E<sup>2</sup>, and axle A, of the rods I' I<sup>2</sup>, and bars I' I<sup>2</sup>, provided with the racks d' d<sup>2</sup> and pinion c', substantially as set forth.

5. The combination, with the cultivator-bars E' E<sup>2</sup>, of the branched hangers a' a<sup>2</sup>, their lower ends curving inward to form bearings for said bars whereby the latter may be brought up close to the roots and stalks of the plants and the branches pass through the spaces between, substantially as set forth.

**239,790. ELISHA HUTSON,** La Fayette, Ala. Cotton-Choppers. Apr. 5, 1881. Filed Aug. 24, 1880.

Claim. The combination, in a cotton-chopper, of the blade-supporting cross-bar C, provided with downward and forward extensions, which form rests for the blades A A, the bolts E E, which secure the blades to the bar, the guard G, provided with similar extensions, and the screw-bolts H, whereby the guard is clamped upon the blades and secured to the cross-bar, substantially as and for the purposes set forth.

**240,189. MICHAEL RUDASILL,** Shelby, N. C. Cotton-Choppers. Apr. 12, 1881. Filed Feb. 2, 1881.

A slotted iron for varying the length of the jointed lever, and pins in the wheel changeable to different holes, so as to regulate or vary the distances between the hills.

Claim. In a cotton-chopper, the combination, with the beam and wheel having pins E, of the jointed lever, the knife attachment, the spring, and the slotted iron J, substantially as described.

**240,598. JAMES E. LINDSEY,** Elmo, Tex. Cotton - Choppers. Apr. 26, 1881. Filed Oct. 12, 1880.

Claim. In a cotton-chopper, the axle A, provided with adjustable end blocks, B, having rearwardly-projecting arms C C, forming bearings for wheels D, the plows or choppers E, adjustable to or from each other on the axle.

the parallel beams H, and pivoted tongue I, provided with crank L, lever N, and rack O, as shown and described.

**241,286. AUGUST W. BRENNER,** and **JAMES FRASER**, Coleman, Texas. Cultivators. May 10, 1881. Filed Oct. 13, 1880.

Claim. 1. In a cultivator, the carriage A B C, the vertical shaft and radial knives K L, the longitudinally-revolving spiral hoes U V, the colters Z, and the plows f, combined and arranged to be operated as and for the purpose specified.

2. In a cultivator, the combination, with the frame A, the drive-wheels C, and the axle B, of the pulleys and band M P N, the guide-pulleys O, the shaft R, the beavled-gear wheels S T, the frame Q, and the cylinders U, carrying the spiral-toothed hoes V, substantially as herein shown and described, whereby the soil, grass, and weeds can be removed from over the roots of the plants without injuring the said roots, as set forth.

3. In a cultivator, the combination, with the frame A of the carriage, and the frame Q, carrying the hoe-cylinders U V, of the guides W, the swinging arms Y, the shaft a, having rigid arms Z and b, the connecting-rod e, and the lever d, and catch-bar c, substantially as herein shown and described, whereby the hoe-cylinders U V can be adjusted and raised from the ground, as set forth.

4. In a cultivator, the combination, with the frame A of the carriage and the plows f, of the pivoted standards g, the semicircular braces h, the levers i, and catches j, substantially as herein shown and described, whereby the plows f can be raised, lowered, and held in place, as set forth.

**242,386. JOSEPH P. SMITH,** Tyler, Tex. Cotton - Choppers. May 31, 1881. Filed Feb. 26, 1881.

Claim. In a cotton-chopper, the combination, with the two-part shaft B, having bearings in the frame A and supported on the wheels C C, of the removable wheels D, secured upon the end z of the portion b, and having the spokes d and cups E, at the ends thereof, arranged to operate between the adjustable plows H, substantially as and for the purposes set forth.

**243,129. THOMAS M. HART,** Webster, Mo. Cotton Scrapers and Choppers. June 21, 1881. Filed Mar. 28, 1881.

A pair of curved scraper-beams pivoted in front of the frame and having a brace and spreader at the rear. The rigid arm of a rock-shaft connects with and lifts the scrapers. Foot-levers oscillate them laterally, and a spring allows the scrapers to yield to obstructions when the lever is locked.

Claim. 1. In a cotton scraper and chopper, the combination, with the frame A and tongue

$A'$ , of the curved scraper-beams  $E E$ , pivoted to the tongue at  $\epsilon'$ , the screw-threaded brace and spreader  $H$ , lifting-lever  $G'$ , and geared chopper, with adjustable hoes as shown and described.

2. The pivoted beams  $E E$ , with adjusting-brace  $H$ , in combination with the rock-shaft  $G$ , arm  $F$ , pivoted standard  $F'$ , spring  $f$ , lever  $G'$ , and ratchet  $G^2$ , substantially as shown and described.

3. The pivoted beams  $E E$ , braces  $H$ , adjustable lever-arm  $F$ , and rock-shaft  $G$ , in combination with the foot-levers  $i' i^2$ , having spring-extensions, and fulcrumed on the pin  $i^3$ , whereby the scraper-beams may be vibrated laterally, substantially as shown and described.

**245,175. JAY J. JOHNSON**, Aberdeen, Miss. Cotton-Choppers. Aug. 2, 1881. Filed Aug. 28, 1881.

Claim. 1. In a cotton chopper and cultivator, the combination, with the axle  $B$ , provided with the gear-wheel  $H$ , of the hinged frame  $K$ , the shaft  $J$ , provided with gear-wheels  $I L$ , the shaft  $N$ , provided with gear-wheel  $M$  and pulley  $O$ , the shaft  $R$ , provided with pulley  $Q$ , and the endless belt  $P$ , substantially as and for the purpose set forth.

2. In a cotton chopper and cultivator, the combination, with the hinged frame  $K$  and the driving-gearing, of the pulleys  $O Q$ , the belt  $P$ , and the knives  $S$ , substantially as herein shown and described, whereby the plants will be chopped to a stand with a cut of uniform depth all the way across the row, as set forth.

3. In a cotton chopper and cultivator, the endless belt  $P$ , provided with a series of knives, the first of which is bent forward, while the others are bent rearward, substantially as and for the purpose set forth.

4. In a cotton chopper and cultivator, the endless belt  $P$ , carrying a series of chopping-knives, and having a portion of its surface without knives, substantially as and for the purpose set forth.

5. In a cotton chopper and cultivator, the combination, with the endless belt  $P$ , of the knives hinged thereto and held in place by the pins  $e$ , substantially as and for the purpose set forth.

6. In a cotton chopper and cultivator, the combination, with the hinged frame  $K$ , carrying the endless belt of knives and its operating mechanism, of the standard  $T$ , provided with the wheels  $U$ , substantially as and for the purpose set forth.

**245,210. J. W. PARSONS**, Alcorn County, Miss. Combined Harrows and Cotton-Choppers. Aug. 2, 1881. Filed May 25, 1881.

The geared shaft has a crank with an opposite heavy end to act as a counter-balance. The crank, by means of compound levers, imparts a transverse reciprocating motion to a

bar from which the chopper-arm is suspended. A spring-loop and hook-lever to hold the plows elevated.

Claim. In a harrow and chopper, the combination, with the driving-wheel  $B'$ , of the shaft geared thereto and provided with the counter-balance  $J$ , the compound lever composed of the arms  $a, b$ , and  $c$ , and the transversely-reciprocating bar  $H'$ , provided with the chopper  $H$ , substantially as and for the purposes set forth.

**245,492. FRIEDERICH A. HELMECKE**, Round Top, Texas. Cotton Choppers. Aug. 9, 1881. Filed Mar. 19, 1881.

Devices for simultaneously raising and lowering the hoes and throwing them in and out of gear.

Claim. In a cotton-chopper, the combination, with shaft  $f$ , of the thimble  $J$ , having the collar  $i$ , provided with arm  $i^2$ , the axle  $B$ , the rod  $j$ , and the rock-shaft  $K$ , having arms  $k k^2$ , the rod  $m$ , and lever  $M$ , as and for the purpose specified.

**246,069. SAMUEL E. BROWN**, Houston, Ga. Cotton-Cultivators. Aug. 23, 1881. Filed Apr. 11, 1881.

An inner frame carrying the chopper and plows and having posts which pass up through guides secured to the outer frame. The inner frame and working parts are raised in the guides by a lever whose fulcrum is on the seat-bar supported by the main frame.

Claim. 1. In a cotton-cultivator, the main frame  $A$ , provided with uprights  $a$ , supporting the cross-pieces  $b$ , in combination with the inner frame,  $C$ , carrying the cultivators  $G$  and chopper-shaft  $D$ , said frame  $C$  being provided with the fixed vertical guides or pins  $c$ , passing through holes in cross-pieces  $b$ , substantially as set forth.

2. The combination of the outer frame,  $A$ , and inner frame,  $C$ , having the strap  $J$  and pin  $s$ , the vertical pins  $c$ , cross-pieces  $b$ , and lever  $H$ , all being constructed as shown, for the purposes set forth.

**246,582. BERT S. WILDER**, Dexter, Texas. Cotton-Choppers. Aug. 30, 1881. Filed June 4, 1881.

Claim. 1. A cotton-chopper having the horizontal cutter  $E$ , and provided with a rolling support that is swiveled to the front end of the frame and trails behind such swiveled connection immediately in front of the cutting-blades, substantially as and for the purpose specified.

2. The combination of the wheel  $H$ , journaled in the swiveled frame  $G$ , with the chopper-knife  $E$ , adjustably mounted in the angular frame  $C$ , whereby the cutting-depth of said chopper is gaged, substantially as and for the purpose shown.

**248,237.** **JOHN M. WALDEN,** Fort Valley, Ga. Cotton-Choppers. Oct. 11, 1881. Filed June 21, 1881.

Claim. 1. A cotton-chopper constructed substantially as herein shown and described, consisting of the three bodies connected by the hinged bars I J J and the rods and bar M M N, and provided with the series of knives F, the side plates, H, and the chopping-hoes S, and the handles B, cross-bar C, and suspending-rods Q, as set forth.

2. In a cotton-chopper, the combination, with the bodies A K K, of the hinged bars I J and the rods M, and fastening-bar N, substantially as herein shown and described, whereby, the said bodies will be securely connected and hinged to each other, as set forth.

3. The combination, with the body A and knives F, having apertured ends projecting above the body, of the rods G and the plates H, the latter having holes in their forward ends, and the lower ends projected below the lower side of body A, as shown and described.

**248,779.** **AUGUSTUS P. NANCE,** Batesville, Ark., assignor of one-half to Anthony Neal Simmons, same place. Cotton, Cultivators. Oct. 25, 1881. Filed July 19, 1881.

Claim. In a cotton cultivator, the combination of beams A A, double runners B B, knives C, having horizontal blades  $c$ , vertical runner shaped blades  $c^2$  at each end thereof, and upright  $c'$  and plows D, substantially as shown and described, and for the purpose set forth.

**248,871.** **JNO. C. McCASKILL,** Clinton, Tex. Combined Cotton Choppers and Scrapers. Nov. 1, 1881. Filed July 29, 1881.

Claim. 1. In a combined cotton scraper and chopper, the combination of a central beam having a slot at its rear end and a hook at its front end, the laterally adjustable bars connected with said beam, the scraper standards pivoted to the adjustable bars, the front clevis for the beam, and rear yoke or support having a transverse pin, and the suspension chains with a supporting frame, as and for the purpose set forth.

2. In a cotton chopper, the combination of the pivoted treadle or board having an adjustable top plate and downwardly extending arms or rods, the hoe handles passing through said arms or rods, and the vertical spring connected with the rods of the pivoted treadle, with the main frame and tappet wheel, or its equivalent, on a traction or ground wheel, as and for the purpose set forth.

3. The combination of the adjustable plate having an outer roller and inner arm, the bolt connected with said plate, and the oscillating slotted treadle with the tappet or actuating wheel and the main frame, as and for the purpose set forth.

**251,820.** **JOHN H. BETHUNE,** Fayetteville, N. C. Cotton Choppers. Jan. 3, 1882. Filed July 23, 1881.

Runners are formed on the arched bar, which forms bearings for both ends of the chopper shaft, and is secured to the axle.

Claim. 1. The combination, with the wheels axle, and bar G, having runners H H, of the chopper shaft, F, journaled at the front in said bar and at the rear in said axle, as shown and described.

2. The combination, with the wheels, axle, and handles A, B, C, of the gear wheels D, E, the shaft F, carrying the hoe arms I, and the arched bar G, carrying in front the runners H, H, as and for the purpose specified.

**252,221.** **JOSIAH L. HUGHES,** Cleveland, Tenn. Cotton Choppers. Jan. 10, 1882. Filed Sep. 3, 1881.

A hollow bearing on the chopper shaft attaches the front ends of the plow beams and handles and permits the shaft to revolve therein. The whole is attached by a universal joint to the gear shaft.

Claim. 1. In a cotton chopper, the combination, with the shaft I, the knives L, and the operating mechanism, of the bearing M, the beams N, secured to the lower side of the bearing, the uprights R, the round S, and the handles T, secured to the upper side of the said bearing, substantially as and for the purpose set forth.

2. In a cotton chopper, the combination, with the frame and the gear shaft G, of the chopper shaft I, the swivel H, the bearing M, the beam F, the handles T, and the upright frame R S, substantially as and for the purpose set forth.

**252,510.** **JAS. D. PATTERSON,** Competition, Mo. Cotton Choppers and Cultivators. Jan. 17, 1882. Filed June 14, 1881.

Claim. 1. The combination, with the hoe Q, of the rod P, supported by lever R, the socket O, the rod N, the pulley L, having crank-pin M, the band K, the pulley J, and gear-wheels G F E D, whereby said hoe is operated from the drive-shaft, as described.

2. The combination of the socket O, hoe P Q, lever R, bracket S, sliding block T, lever I, and connecting-rod U with the vertically-grooved cross-bar A, and mechanism for vibrating said socket, substantially as and for the purpose set forth.

3. The combination, with the bar P, carrying the hoe Q, of the vibrating socket O, provided with the bracket S, and the lever R, pivoted to the said bracket, substantially as and for the purpose set forth.

4. The combination with the slotted and grooved cross-bar A, the gear-wheels D E F, and the socket O, of the gear-wheel G, the block H, the lever I, the rod U, and the block

T, substantially as and for the purpose set forth.

**5.** The combination, with the bar P, carrying the hoe Q, of the socket O, provided with the lever R, pivoted to the bracket S on the said socket, and mechanism for vibrating said socket, substantially as and for the purpose set forth.

**255,058. JOHN M. WALDEN,** Fort Valley, Ga. Cotton-Choppers. Mar. 14, 1882. Filed Dec. 19, 1881.

Claim. **1.** In a cotton-chopper, the combination, with the runners A and the rock-shaft E, of the beams F, carrying the chopping-hoes H I J, and alternating beams G, carrying the guard-plates K, substantially as herein shown and described, whereby the plants are chopped to a stand and the plants left for a stand are protected from injury, as set forth.

**2.** In a cotton-chopper, the combination, with the runners A, the rock-shaft E, and the intermediate beams G, of the plates K, substantially as herein shown and described, whereby the crust of the soil is cut at the opposite sides of the plants left for a stand and the said plants protected from the soil moved by the chopping-hoes, as set forth.

**3.** In a cotton-chopper, the combination, with the handles O, the side beams F, and the runners A, of the bent lever R, the spring S, the rods T, and the latches U, having pins V, substantially as herein shown and described, whereby the beams can be locked in place and unlocked, as set forth.

**255,258. CHARLES P. DICKERT and EMANUEL McD. HELLER,** Walton, S. C. Implements for Siding and Thinning Cotton. Mar. 21, 1882. Filed Sep. 24, 1881.

Claim. **1.** The combination, with a rigid wheel-frame carrying two transverse laterally-adjustable bars, each provided with a pair of scrapers on its outer end, the pairs of scrapers lying on opposite sides of the frame, of mechanism, substantially as described, for laterally adjusting the bars as set forth.

**2.** The combination, with a rigid wheel-frame carrying two transverse laterally-adjustable bars, each provided with a pair of scrapers arranged as set forth, and means, substantially as described, for laterally adjusting said bars, of mechanism, substantially as described, for operating two hoes on the same shaft for thinning out the plants, as set forth.

**3.** The combination, with the driving-wheel  $\epsilon$ , provided with the circular bevel-gear  $i$ , and the shaft  $k$ , provided with the bevel-pinion  $i'$ , and double cranks  $m n$ , of the handles  $o o'$ , pivoted respectively to the double cranks, hoes  $p p'$ , and guides  $q q$ , substantially as described, and for the purpose set forth.

**4.** The combination of the frame  $a$ , laterally-adjustable rack-bars  $r$ , provided with scrapers

$u$ , shaft  $v$ , provided with hand wheel  $d'$ , and cog-gear  $b'$ , driving-wheel  $c$ , having bevel-gear  $i$ , shaft  $k$ , provided with bevel-pinion  $i'$ , and double cranks  $m n$ , handles  $o o'$ , hoes  $p p'$ , and guides  $q q$ , substantially as described, and for the purpose set forth.

**255,643. DREURY W. MASSEE,** Marshallsville, Ga. Cotton-Choppers. Mar. 28, 1882. Filed Jan. 3, 1882.

Claim. The combination, with the beam A, and standard D, of a single blade, E, notched at  $b$ , the wings  $d d'$ , the wings  $e e'$ , formed on said blade, and the stiffening-bar F secured to said blade at the back thereof by means of a bolt,  $c$ , and the eyes  $a a$  on the braces G G, substantially as described.

**257,009. JOSIAH R. HOWARD,** Clinton, N. C. Cotton-Cultivators. Apr. 25, 1882. Filed Feb. 23, 1882.

In this machine are combined scrapers, choppers, center plows, and gravitating hillers. The guide-wheel is swiveled and turned by ropes attached to the cross-head. A loose gear-wheel for clutch device. Draft and guide wheel to one side of center.

Claim. **1.** The combination of the adjustable draft-frame A, pinion K, revolving chopper N, guide-wheel E, supporting-wheels D' D', scraper F, and the gravitating blades R, all constructed and arranged to operate substantially as set forth.

**2.** The combination, with the draft-frame and its supporting-wheels, of rotary choppers, adjustable scrapers, furrow-plows, and gravitating earthing-up blades, substantially as and for the purposes described.

**3.** In a cotton-chopper, the pivoted gravitating earthing-up blades R R, formed as shown, in combination with the heads  $i$  and slots  $j$ , substantially as described.

**258,512. JOHN M. WALDEN,** Fort Valley, Ga. Cotton-Choppers. May 23, 1882. Filed Mar. 13, 1882.

The chopper has intermittent motion, caused by being hung upon a crank-lever pivoted at its angle, and connected to a pinion that is struck at intervals by the pins in a double disk-wheel. The chopper works through one of the side plates of a double fender.

Claim. **1.** In a cotton-chopper, the combination, with choppers P and scrapers  $h$ , of the guards  $i$ , having rear curved extensions,  $j$ , higher in the lower edge than said guards, as and for the purpose described.

**2.** In a cotton-chopper, the combination, with the frame-blocks g, and choppers P Q, of the guard  $i$ , extended forward of the chopper and having slot  $k$ , as and for the purpose specified.

**3.** The combination of the spur-wheel V, wheel F, having bar-tappets W, working-lever

T, and the spring X, with the elbow-lever Q and chopper P, substantially as specified.

**259,770. JACOB B. LISLE,** Springfield, Ohio., assignor to himself and William J. Irwin, same place. Cotton-Choppers. June 20, 1882. Filed Nov. 23, 1881.

The machine is to be drawn across the rows. Choppers in a slotted cross-head susceptible of being changed or set at any distance apart are suspended by hinged flexible bars, the hinge being connected by a wooden pin. Sectional standard may be set at a different pitch.

Claim. 1. In a cotton-chopper, a holder, *d d*, suspended by two drag-bars, *d*, the movable sockets *p*, and cutters *n n'*, in combination with a lever, *i*, link *z*, chain *f*, and hook *h*, as and for the purpose specified.

2. A cotton-chopper provided with a holder, *d d*, flexibly connected to the frame, having a longitudinal slot for the reception of a series of movable sockets, *p*, in combination with a series of cutters, *n n'*, as and for the purposes specified.

3. A cotton-chopper provided with sockets composed of parts *p q r s*, in combination with a slotted holder, *d d*, suspended by hinged bars, and cutters *n n'* substantially as and for the purpose specified.

**260,458. BURWELL J. CURRY,** Huntsville, Ala. Cotton-Choppers. July 4, 1882. Filed Apr. 21, 1882.

Claim. 1. In a cotton chopper, the combination, with the transverse vibrating bar *g*, of the threaded bolts *g<sup>2</sup>*, secured therein and having corrugated disks *g'*, and the chopper shanks *I*, having corrugated disks *i<sup>2</sup>* adapted to engage with the disk ends of said bolts, whereby the hoes may be adjusted any desired angle, substantially as described.

2. In a cotton chopper, the combination with the transverse shaft *N*, of the slotted tubular bosses *M*, adjustably secured thereon, the stems *L<sup>2</sup>*, inserted loosely in said bosses and having pins engaging with the slots, spiral springs *L'*, coiled on said stems, and the rotating cutters *L L'*, journaled in boxes *L' L* at the lower ends of the stems, whereby said cutters are adapted to operate with a yielding pressure, substantially as described.

3. In a cotton chopper, the combination of the frame *A*, transverse vibrating bar *g*, choppers *I*, connected therewith, adjustable oscillating bars *k k*, levers *i i* connecting rods *h h*, pitmen *f f*, shaft *d* having eccentrics *e e* and central gear *c*, and suitable operating mechanism, whereby the choppers are caused to vibrate longitudinally, substantially as described.

4. In a cotton-chopper, the combination, with the shaft *N*, having arms *N'* and *P*, and the rotating cutters *L L'*, journaled in tubular bearings *L'*, provided with stems *L<sup>2</sup>*, having a yielding connection with said shaft, of means of imparting an upward and forward movement to said shaft *N*, for the purpose of rais-

ing the rotating cutters, substantially as described.

5. In a cotton-chopper, the combination, with the frame *A*, and bars *N'*, of the shaft *N*, having arms *N'* pivoted to said bars, the rotating cutters *L*, having a yielding connection with said shaft, and means for raising and lowering the same, substantially as described.

6. In a cotton chopper, the combination, with the vibrating chopper-bar *g*, hoes *I*, connected therewith, adjustable supports *k k*, movable shaft *N*, having arms *N'* and *P*, and rotating cutters *L L'*, of the levers *K K*, connected by stirrup *U*, chains *p p*, connecting the rear ends of said levers with the vibrating chopper-bar, and the connecting rod *T*, lever *R*, and chain *Q*, connecting the forward end of one or both main levers with the arm attached to the cutter shaft, whereby the choppers and cutters are simultaneously raised, substantially as described.

**262,474. WILLIAM O. RAINS,** Edom, Tex. Cotton Choppers. Aug. 8, 1882. Filed Apr. 19, 1882.

The hoes are all upon one side of the shaft. The loose gear-wheel slides in or out of gear upon the shaft. The inner end of this wheel is shaped in bevel or cam form, and when out of gear and the hoes turned up it binds against a hanger, by which means the hoes may be kept elevated.

Claim. The combination, with the rotary chopping-shaft provided with the sliding gear collar, the inner face of which is beveled round to form a shoulder, of a cross piece, *X*, having a downwardly extending perpendicular stop-piece *C*, *C'*, substantially as set forth.

**263,425. ELIJAH W. NORTHCUTT,** Atworth, Ga. Combined Cotton Choppers and Cultivators. Aug. 29, 1882. Filed June 2, 1882.

Claim. In a cotton chopper, the combination of the cross beams *B B'* of the frame, having slots *G G* and *G' G'*, respectively, the longitudinal parallel beams *H H*, having their ends adjustable laterally in said slots, and carrying the cultivators and rearwardly-extending fenders, and draft bar *R*, having cross bar *P* at its rear end, the ends of which pass through openings in beams *H H*, to brace and guide the same in lateral adjustment, as set forth.

**263,632. JOHN M. WALDEN,** Fort Valley, Ga. Cotton Choppers. Aug. 29, 1882. Filed May 13, 1882.

Claim. 1. The combination of connecting-bar *M* and adjusting-rods *N P* with chopper-hoes *C* and the frame on which said hoes are mounted, as described.

2. The hoe-beams *A* and *B*, hoes *C*, and the connecting-beams *D E*, and bars *M*, in combination, said beams and hoes being alike adjustable along the cross-bars *D E* and connect-

ing-bar M, respectively, substantially as described.

**3.** The hoe-stocks being vertically adjustable in the beams, and also adjustable by the bar M and rods N P, substantially as described.

**263,660. LEWIS S. McMULLEN,** Atlanta, Ga., assignor of one-half to Jacob McKinley, same place. Cotton-Choppers. Aug. 29, 1882. Filed Apr. 22, 1882.

Claim. **1.** The plow-beam D, formed of a single bar of metal bent upward and outward at its middle to provide an arch, d<sup>2</sup>, and plow-standards d' d', and having its ends curved forward and brought together, and provided with means whereby it may be attached to the pendent arm d, substantially as set forth.

**2.** The combination of the frame A, the pendent arm e, secured at the middle of the rear bar of the frame, the plows e' e', pivoted to the lower end of the arm e, the pendent arm d, the plows or beams D, pivoted to the arm d, the lifting mechanism d<sup>4</sup> d<sup>5</sup>, and the choppers c c, supported on the shaft a and between and in line with the plows e' e' and d' d' substantially as set forth.

**265,278. LUTHER B. OWEN,** Marietta, Ga., assignor to Cornelia E. Owen, same place. Cultivators. Oct. 3, 1882. Filed May 23, 1882.

The driving-wheel carries the cam-wheel, which actuates a pendent bar connected by links and bell-cranks to the knives, giving them an intermittent motion, striking together to cut the row of plants, and then withdrawn to leave a hill. A cranked bar carries the scrapers at each end, and when at work bears against a rear cross-bar.

Claim. **1.** The combination, with the frame having a cross-piece, O, standards I I, and carrying a rotary shaft on which is fixed the drive-wheel, and a wheel or disk, G, having cams or projections H, of a rock-shaft journaled between standards I I, having an arm, K, engaged by cogs H, and suitable spring mechanism, N, and the chopping-blades journaled on spindles or pins on piece O, and connected to lower end of arm K by rod T, as set forth.

**2.** The combination, with a cross-piece, O, on the frame, having projecting spindles or pins R R, of chopping-blades, the shanks or tangs of which are journaled on said spindles, and provided with inwardly-extending arms S, to which is pivoted a connecting-rod, T, also pivoted at its rear end to the vibratory arm of a rock-shaft, as set forth.

**3.** The combination, with a frame having a cross-piece, O, carrying the hoes or choppers, and a cross-piece, X, in front of the same, of the plows on the ends of one U-shaped standard, hinged to the latter, so as to be thrown up out of engagement, and when in use adapted to bear against cross-piece O, as set forth.

**265,968. MATHEW H. KEYS,** Oxford, Miss. Cultivators and Cotton-Choppers. Oct. 17, 1882. Filed July 29, 1882.

Claim. **1.** The combination, with the frame having the axle and cross front rod or bar, of one or more platforms, hinged on said rod at their front ends, and supported on the axle at their rear ends, said platforms carrying the cultivators and adapted to be elevated, as set forth.

**2.** The combination, with the frame having the front cross rod or bar, on which is hinged and adapted to slide one or more pulley-blocks, of one or more platforms hinged on said front rod provided with a series of slots, in which the cultivator-shanks are hinged or pivoted, and the connecting chain or rope secured to the cultivators and passing over the pulley, as set forth.

**3.** The combination, with the frame having the front cross bar or rod, of the two platforms hinged on the latter, one at each side, and carrying the hinged or pivoted cultivators, and the central cultivator hinged on said front rod between the platforms, as set forth.

**4.** The combination, with the frame having the front cross rod or bar and carrying the rock-shaft in rear thereof, of one or more platforms hinged on said front rod, and connected at their rear ends to the rock-shaft by a chain or cord extending up and adapted to wind round the latter to elevate the platforms on their hinges, as set forth.

**5.** The combination, with the frame comprising the side beams having the standards carrying a rock-shaft, one beam being provided with a bracket having bearings for a shaft carrying a pulley, the front cross rod or bar, and carrying the axle, of the platforms hinged on the latter, and supported at their rear ends by the axle, the platform-elevating chains or ropes, and the rock-shaft-operating chain or rope, as set forth.

**6.** The combination, with the rod carrying a plate, T, at its end, of a spring-plate, U, to limit the movement of plate T, and by its downward tension thereon retain it in position, as set forth.

**7.** The combination, with the frame having the side beams carrying the axle and cross front rod or bar, of the platforms (one or more) hinged on the latter and resting on the former, and the rods moving on the beams and having at their ends angular plates to retain the platform down, as set forth.

**8.** The combination of the frame carrying the rock-shaft, and having the front cross rod or bar and the rotary axle, the hinged platforms carrying the forward cultivators, the hinged standard carrying the rotary chopper shaft, mechanism for operating the latter, and the elevating chains or ropes, as set forth.

**266,788. GREENE W. DUGGER,** Greensborough, Ala. Cotton-Choppers. Oct. 31, 1882. Filed Mar. 29, 1882.

Chopper-frame balanced on the axle, with a spring-wheel support at the rear, and at front a sliding balance-weight. Tongue, hounds, and drag-bars hinged to blocks on the axle. Wheels locked to axle by ratchet and pawl, so as only to impart motion to the chopper when going forward.

Claim. 1. The combination with the axle, of the chopper-supporting frame I, mounted at its middle on the axle, provided with a gage-roller, J, at the rear, and having a sliding counter-balance in front on the bar L, as shown and described.

2. The combination, with the depressible frame I and gage-wheel J, having a standard, N, of the spring M, and the spring-pin Y, adapted to be entered in one of several holes in the standard N, as and for the purpose specified.

**267,843. JOHN P. DEVER,** Batesville, Ark., assignor to himself and William J. Pearson, same place. Cotton Choppers, Scrapers, and Cultivators. Nov. 21, 1882. Filed May 24, 1882.

Claim. 1. The combination, with the frames *a k*, the axle *h*, and wheels *i*, of the bevel-gears *n o*, crank-shaft *m*, the pitman *p*, the transverse slotted arch *t*, and the chopper *q r*, pivoted in the slot of the said arch, substantially as and for the purpose set forth.

2. The combination with the axle *h*, the wheels *i*, the frame *a*, and the frame *k*, detachably secured thereto, and projecting from one side thereof, of the bevel-gears *n o*, the crank-shaft *m*, having its bearings in the frame *k*, the pitman *p*, the detachable slotted arch *t*, and the chopper *q r*, pivoted in the slot of the arch, substantially as and for the purpose set forth.

**269,716. GEORGE W. ROBERTS,** Pattonville, Tex., assignor of one-half to Noah M. Rish, same place. Cotton Choppers and Harrows. Dec. 26, 1882. Filed June 17, 1882.

The machine is convertible and adapted to be used as a cotton chopper or harrow. The cotton-chopper consists of three hinged beams or sections carrying chopping-knives, the central section having handles connected by a double rack and provided with levers which are linked to the outer sections, whereby the distance between the knives may be increased or diminished at will.

Claim. In a cotton-chopper, the combination, with the wheeled vehicle, of the side and central section-bars carrying the inclined knives, the handles secured to the central section, the double rack connecting said handles, the adjusting-levers pivoted to the central section, and the pivoted perforated arms connecting the levers and outer section-bars, substantially as described.







## COTTON-SCRAPPERS.

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## COTTON-SCRAPERS.

**4,553. JOHN M. CULLEN**, Benton, Miss. Plows. May 30, 1846.

Claim. The combination of the scraper *e* and rake or harrow *f* with the cultivator, in the manner and for the purpose set forth.

**6,379. WM. C. FINNEY**, Fayette Co., Tenn. Cotton Scrapers. Apr. 24, 1849.

Claim. The peculiar connection and arrangement of the slide *H*, landside *K*, and mold-board No. 1, as described, securing the proper position of the scraper, regulating the position of the stock, and preventing the alteration of its set by the wear from friction to which the unprotected helve is subject.

**8,524. HENRY GOLDSON**, Greensborough, Miss. Plows. Nov. 18, 1851.

Claim. A cotton scraper, constructed as herein described, with a share and mold-board projecting from the side of the landside, opposite that to which the earth is thrown, the landside thus extending from the point of the scraper to that wing of the mold-board opposite the one to which it usually extends; and the several parts being so arranged that the landside will run deep enough to hold the implement firmly to its work, the share will pare the ground and cut off the weeds near the roots of the plants, and the mold-board will conduct the same towards the middle of the space between the rows.

**8,802. JAMES LATTIMER**, Chattoogaeville, Ga. Shovel Plows. Mar. 16, 1852.

Claim. The combination of the wing or half shovel plow and the adjustable scraper, arranged on different stocks, in the said beam, when said scraper is arranged on the landside, and rearward of the plow, and so that the grass, weeds, &c., shaved off by the scraper, will be thrown into the furrow made by the plow; the whole being arranged in the manner and specially for the purpose herein set forth and fully shown.

**9,483. WILLIAM A. GATES**, Mount Comfort, Tenn. Plows. Dec. 21, 1852.

Claim. 1. The rhomboidal plate, *c, d*, bent on one of its diagonals, and constructed and arranged substantially as described, so that either leaf can be used as a landside or share, at pleasure; the edges of the share becoming, when the plate is reversed, the edges of the landside, and those of the landside the edges of the share, in the manner and for the purposes specified.

2. In combination with the plate, *c, d*, as described, the double bifurcated brace, *f, g, h, i, j*, for attaching said plate to the beam, substantially as described.

**11,454. CHARLES K. FARR**, Auburn, Miss. Cultivators. Aug. 1, 1854.

Claim. The hollow standard *b b*, with the ground-plate for firmly uniting the beam to the implement by means of bolts passing through said standards, as hereinbefore set forth.

**11,601. O. G. EWINGS**, Heart Prairie, Wis. Plows. Aug. 29, 1854.

Claim. The jointed beams *a b*, in combination with the adjusting-screws *g' g'*, as described.

**12,571. GEO. W. N. YOST**, Port Gibson, Miss. Cultivators. Mar. 20, 1855.

I am aware that cultivators and scrapers have been used, which were laterally and perpendicularly adjustable; therefore, I do not claim such devices.

Claim. The combination of the adjustable scraper *E*, with the bar, point, &c., *D*, as described, for the purpose of barring off the row and rapping up the middle; also, for scraping off the row, and rolling the scrapings over into the furrow opened by the plow, substantially as set forth.

**18,475. DAVID K. THOM**, Farmington, Tenn. Plows. Oct. 20, 1857.

Claim. Combining with the ordinary turning plow an adjustable scraper, *A A*, adjustable laterally and perpendicularly, as hereinbefore described.

**18,478. R. A. VICK**, Byhalia, Miss. Cotton Cultivators. Oct. 20, 1857.

Claim. The construction and arrangement of the body *E*, top piece, *D*, and front bar *G*, so as to be firmly and conveniently combined, and so that three bolts will unite them together, and at the same time secure the handles, beam, and blade thereto, substantially in the manner specified.

**18,525. J. G. WINGER**, Vicksburg, Miss. Cotton Scrapers. Oct. 27, 1857.

Claim. The longitudinally-adjustable cutters *C C*, having each an inclined, vertical, and curved portion, as described, in combination with mold-board supports and frame, substantially as set forth.

**21,657. C. A. GAINES**, Watson, Miss. Cotton Scrapers. Oct. 5, 1858.

Claim. Giving a hollow or concave form to the bottom *E* of the block from the rear and side edges inward and forward to the mold-board or scraper *D*, substantially in the manner and for the purpose herein specified.

**23,171. JOHN HENDERSON**, Bluff Springs, Miss. Cotton Scrapers. Mar. 8, 1859.

Claim. The forked bar *F*, and brace bar *C* in combination with the beam *B*, and wings *A*, of a double winged cotton scraper, when con-

structed and arranged in the manner set forth.

**23,395. THOMAS A. ROBERTSON,**  
Washington, D. C. Cultivators. Mar. 29,  
1859.

Claim. The wing A, extended obliquely from the rear standard E, to a point d, from which point projects a straight portion, or divided B, in combination with the oblique cutting G, as described.

**23,788. PATRICK SHARKEY,**  
Brownsville, Miss. Cotton Scrapers. Apr.  
26, 1859.

Claim. 1. Arranging the scrapers F G one forward of the other on guide blocks or runners D E of different lengths, substantially as and for the purposes set forth.

2. The arrangement of a sleigh runner shaped gauge with the short scraper E, substantially as and for the purposes set forth.

**24,983. GEORGE W. BEARD,** Canton, Miss. Cotton Cultivators. Aug. 9, 1859.

Claim. The peculiar shape given to the scrapers or cutters J J, and their lateral and vertical adjustment, in combination with the adjustable plow beams C C, when the same are all arranged in the manner and for the purposes set forth.

**25,434. JONATHAN H. MITCHELL,** Germantown, Tenn. Cotton Scrapers. Sep. 13, 1859.

Claim. 1. The combination and arrangement of the beam d, chair e, mold-board a, and share b, when operating substantially as set forth.

2. The adjustable and changeable share b, when constructed, arranged, and operating substantially as and for the purpose set forth.

**26,096. MILES EARNHART,** Gold Water, Miss. Cotton Scrapers. Nov. 15, 1859.

Claim. The arrangement and combination of the double adjustments of the mold-board E, with the stock C and rigid supporting brace G, substantially as and for the purpose specified.

**26,597. JOHN R. KING,** Raleigh, Tenn. Cotton Cultivators. Dec. 27, 1859.

Claim. The arrangement of the frame p q b c, and wing or mold board m, cast solid together, extra landside s with its tenons d n z, and brace a, with the cotton scrapers g, as described for the purposes specified.

**27,716. CULLEN CASEY,** Goldsboro, N. C. Cotton Cultivators. Mar. 27, 1860.

In the construction of this invention A is the beam, which is constructed of two pieces, and is attached by means of the bolt c and band e, for the purpose of enabling the mule or horse to walk on either side of the row, as may be desired. A<sup>1</sup> is the stock, a the handles, B the scraper, C the screw bolt connecting the front

of the scraper with the beam A, b the bolt passing through screw bolt C. The scraper B is attached to the frame d.

Claim. The arrangement of the beam A, scrapers B, groove B<sup>1</sup> and bolt G, with stock A<sup>1</sup>, the whole constructed and operating as described, for the purpose set forth.

**27,659. MARK SNOW,** Auburn, Miss. Cotton-Cultivators. May 27, 1860.

Claim. The combination of the scraping mold boards d, hillling mold boards e, and tenders g, when arranged and operating substantially as described.

**28,835. JAMES M. COBB,** Jackson, Tenn. Cotton-Scrapers. June 26, 1860.

Claim. The construction and arrangement of the frame, sole, and mold board, when united in the manner and for the purposes represented and described.

**29,836. EPHRAIM WELLS,** Auburn, Miss. Cultivators. Aug. 28, 1860.

Claim. So connecting and arranging the sole piece of a plow in regard to the frame, beam, and handles, as that its lower side shall assume an oblique position when the sole is secured to the vertical standard of the plow, for the purpose of retaining the plow in a vertical position when it is passed over the inclined sides of ridges, substantially in the manner and for the purpose described.

**29,924. JAMES C. TEAGUE,** Centre Hill, Miss. Cotton-Scrapers. Sep. 4, 1860.

Claim. The arrangement and combination of the cast iron box G, with inclined bottom and balanced sides, bar C, for attaching to the beam and movable weights, to increase or diminish the weight of the scraper and keep it balanced, substantially as specified.

**30,718. C. H. BURBRIDGE,** Middle-town, Conn. Cotton Scrapers. Nov. 27, 1860.

Claim. Attaching the scraping wing of a cotton scraper to a suitable carriage or plow frame by a hinged joint and pivoted brace rod K, so as to allow said scraping wing to rise and fall with the uneven surfaces of the ridges, substantially as set forth.

**30,729. W. W. GRAVES,** Fort Adams, Miss. Cotton Plows. Nov. 27, 1860.

Claim. The scraping plate F, when the same is attached to the end of the long and narrow land side bar E, and otherwise arranged, so as to cut and throw the scrapings down into the center of the furrow, as set forth.

**30,746. WILLIAM L. MILHOLEN,** Centre, Ala. Cotton Scrapers. Nov. 27, 1860.

Claim. The arrangement of the beam i, braces 5 5, bolts 6 6, arms 7 and 8, nuts 10 and 11, shares 4 4, hinge joint 9, standard 3, handle 2, as described, for the purpose specified.

**30,773. HENRY G. STREET,** Liberty, Miss. Cotton Cultivators. Feb. 27, 1860.

Claim. The arrangement of the beam A, handles C C, standards B and E, bar D, share or point b, and scraper F, with its curve f, the whole being constructed in the manner and for the purposes described.

**31,484. JOSIAH SHEPARD,** Columbia, Tex. Cotton-Scrapers. Feb. 19, 1861.

Claim. 1. The curved runners C C, arranged and constructed as described, and in combination therewith the scraping plates D D, when attached to the runners by pivoted arms d d, brace rods g g, and bolts at e e, substantially as and for the purposes set forth.

2. The jointed beams E E, carrying plates k k' k', and otherwise constructed and arranged, as and for the purpose specified, when combined with the runners C C.

**32,010. JAMES A. SPEER,** Manchester, Pa., assignor to William J. Kane, same place. Cotton Cultivators. Apr. 9, 1861.

Claim. The arrangement of the draft beam a, second beam c, scraper d, and slots 1 2 3 and x, when constructed substantially as described, for the purpose set forth.

**32,082. GEORGE W. RICE,** Demopolis, Ala. Cotton Cultivators. Apr. 16, 1861.

Claim. The arrangement in the peculiarly-framed scrapers E E and U-shaped bars D D with each other and with the standard C, brace rods F F, adjusting rod G, and beam A, all as shown and described, for the purposes set forth.

**41,728. JAMES SWART,** Hoffman's Ferry, N. Y. Cotton Cultivators. Feb. 23, 1864.

Claim. The mold board A, constructed with flat-faced wings e e, narrow at the base and wider towards their ends, having straight lower edges f f, and rounded outer ends g g, all as herein shown and explained and for the purpose specified.

**60,879. NICHOLAS GOTTON,** Union Depot, Tenn. Cotton Cultivators. Jan. 1, 1867.

Claim. 1. The frame A, provided with the slots a a', being at right angles in combination with the scraper B, so that the scraper B may be adjusted and secured at different angles to the frame A, substantially as shown and described and for the purposes set forth.

2. The peculiar construction of the frame A with the lower portion running upon the ground, so as to form a gauge for the scraper, substantially as shown and described.

**62,228. TURNER SAUNDERS,** Memphis, Tenn. Cotton Scrapers. Feb. 19, 1867.

Claim. The combination of the scraper and plow, the parts being constructed and arranged to operate in the manner substantially as and for the purpose herein set forth.

**63,912. SETH MARCH,** Norfolk, Va. Corn Weeder. Apr. 16, 1867.

The landside is elongated to steady the machine, and together with a shovel-shaped mold board is attached to a cast-iron frame.

Claim. The frame A, share B, and detachable heel C, when these parts are constructed, arranged and combined, as herein specified.

**67,252. C. BILLUPS,** Norfolk, Va. Corn and Cotton Scrapers. July 30, 1867.

Claim. 1. The standard C.

2. The slots c c', when used for the purpose specified.

3. The mold-board E, having two horizontal slots e e', for the purpose specified.

4. The detachable landside and the method of attaching it, as described.

5. The center board or pivot cutter C, working in connection with the landside, substantially as and for the purposes described.

6. The slot d, through which the center board or pivot cutter passes, and the mode of securing and fastening the same.

7. Claims fifth and sixth as applied to all plows.

**68,296. T. T. FLEMING,** Memphis, Tenn. Cotton Scrapers. Aug. 27, 1867.

Claim. 1. The combination of the blade or share a, standard B, bar D, and plate or shoulder C, all arranged substantially as and for the purpose set forth.

2. The knife E applied to the rear of the blade or share, substantially as and for the purpose specified.

**77,203. SETH MARCH,** Norfolk, Va. Plow Frames. Apr. 28, 1868.

Claim. The frame A, provided with the elongated slots a', for the adjustment of the mold board, and the elongated slot i', for the adjustment of the plow beam, substantially as described.

**77,855. THOMAS P. WARREN,** Norfolk, Va. Plows. May 12, 1868. Improvement on the patent of Warren and Woodhouse, June 10, 1867.

Claim. 1. The slots a a and a', when arranged in a vertical or inclined position in the mold-board, and all extending in the same or parallel lines, in the manner and for the purpose set forth:

2. The reversible heel iron and guide G, when constructed so as to be employed in the manner and for the purposes specified.

**79,091. J. M. WILSON,** Lexington, Miss. Plows. June 23, 1868.

Claim. 1. A plow, consisting of the combination of the arrow C with the scraper D, all made and operating substantially as herein shown and described.

2. Providing the scraper D with notches a b, to facilitate its fastening to the standard A and arrow C, substantially as herein shown and described.

**82,990. FRANCIS REESE**, Elyton, Ala. Plows. Oct. 13, 1868.

A guide plate secured to the main frame runs near the ground and prevents the scraper from breaking the ground that the plant stands on, and also the hillling plow from covering the plant.

Claim. The guide plate, and the combination of the scraper, hillling plow, and other parts as described.

**86,205. WILLIAM R. BLANCHARD**, Hertford, N. C. Cultivators. Jan. 26, 1869.

Claim. 1. The combination of the draught-bar H, bolt J, brace-rod K, and slotted brace-rods L, with the beams A, and rods F, substantially as herein shown and described, and for the purpose set forth.

2. An improved cultivator, formed by the combination of the beams A, standard B, handles C, horizontal bars D, adjusting connecting-rods G, scrapers E, rods F, draught-bar H, bolt J, brace-rod K, and slotted brace-rods L, with each other, substantially as herein shown and described, and for the purposes set forth.

**86,704. JAMES SCOTT SMITH**, Helena, Ark. Cotton-Scrapers. Feb. 9, 1869.

Claim. 1. The scrapers A B, ground-plates C C, frame F F, frame R R, thumb-screws D D D D, braces E E E E, slots S S S S, as constructed, combined, and arranged.

2. Prows T T, orifices u u, hinges V V, in combination with scrapers A B and plates C.

3. In combination with scrapers A B and ground-plates C C, the plates H H, nuts I I I I, bar J, and cutting-boards K K, all as described and shown, and for the purposes specified.

**94,774. J. REYNOLDS**, Crystal Springs, Miss. Combined Plows and Scrapers. Sep. 14, 1869.

Claim. 1. The concave mold-board scraper D, constructed as described, that is to say, with its landside end projecting substantially as specified, when used in combination with the plow C c<sup>1</sup>, for the purpose set forth.

2. The adjustable brace-rod E, in combination with the beam A, standard C c<sup>1</sup>, and mold-board scraper D, substantially as herein shown and described, and for the purposes set forth.

**98,341. B. F. BOWLING**, Holly Springs, Miss. Combined Cotton Scrapers and Cultivators. Dec. 28, 1869.

Claim. 1. The combination of the adjustable harrow E with the scraper, substantially as and for the purpose herein set forth.

2. The construction and arrangement of the oblique connecting-bar G, pivoted to the front upright B of the stock, and guided and braced by the rear upright C thereof, as described.

**100,188. J. REYNOLDS**, Crystal Springs, Miss. Subsoil Plows and Scrapers Combined. Feb. 22, 1870.

Claim. The combination of the scraper F and standard G with the beam A and plow D C, substantially as herein shown and described, and for the purpose set forth.

**103,877. THOMAS J. HARRIS**, Guntown, Miss. Cotton-Scrapers or Cultivators. June 7, 1870.

Claim. The arrangement and construction, as described, of the mold-board B, share G, flange D, and foot E, for the purpose set forth.

**103,930. DANIEL G. RITTENHOUSE**, Shelby Depot, Tenn. Cotton-Scrapers. June 7, 1870.

Claim. 1. In a cotton-scaper, the frame E, having the supplementary standard u, with its attaching-surface q and bolt-hole p, and the head t, with its staple s, substantially as shown and described, for the purpose set forth.

2. The arrangement of the mold-board A, beam B, handles C C, stiffening-brace D, and frame E, constructed substantially as represented and described, as and for the purposes set forth.

**104,396. JAMES LYTCH**, Laurinburg, N. C. Cotton-Scrapers. June 14, 1870.

Claim. The arrangement of the fixed central guide plate E, so as to project below the cutting-edge of the share A, to steady and hold the latter in the soil, in connection with the auxiliary scraper F, in the manner and for the purpose herein shown and specified.

**105,326. LUTHER M. GANONG**, Friar's Point, Miss. Cotton-Cultivators. July 12, 1870.

Claim. 1. The bar D, as constructed, in combination with scrapers E E or plows G G, arranged in the manner and for the purpose set forth.

2. A cultivator, consisting of slotted beam A, handles B B, and standard C, bars D D', scrapers E E, plows G G, and thumb-screws a a, all constructed and arranged as shown and described.

**108,979. ANDREW DAY**, Crystal Springs, Miss. Plows. Nov. 8, 1870.

Claim. The arrangement of the curved bars F F, keepers G, screw-bolt and the nuts a a, the scraper H provided with slots h', and the bolts l, as shown and described, for the purpose specified.

**109,334. GEORGE MILLIRON**, Pyhalia, Miss., assignor to himself and P. T. Raiford, same place. Corn and Cotton-Scrapers. Nov. 15, 1870.

Claim. The scraper, consisting of beam A, standard C, handles E E, rods G G, and share D, the said share being provided with projection d, which extends half-way up from its lower corner, all as set forth and described.

**109,491. THOMAS E. C. BRINLY,** Louisville, Ky. Cotton-Sweeps. Nov. 22, 1870.

Claim. The share A, constructed in one piece with the cutter A', in combination with the standard B, constructed in one piece with the landside B', and arranged in relation to one another, substantially as set forth.

**109,893. THOMAS GUICE,** Mount Andrew, Ala. Cotton-Plows. Dec. 6, 1870.

Claim. The plows  $\alpha \alpha'$ , and double-winged plows C C, each constructed and both sets relatively arranged in the particular manner shown and described, whereby they are adapted to cut a furrow with a vertical side, and to scrape along each side of the cotton-plant row or ridge, and clean the furrow of loose dirt.

**110,411. JAMES WILEY,** Warsaw, N. C. Cotton-Plows. Dec. 20, 1870.

Claim. 1. The metal bar A, bent and slotted as described, and having the flanged piece  $d$  in combination with the cross-bar B, and the scraper C having the peculiar form and set described, and having the slot  $e$ , when each is constructed and all are arranged together substantially in the manner and for the purpose described.

2. The sweep D, with its bars, braces, nuts, and screws, in combination with the cross-bar B, when each and all are constructed and arranged substantially as described.

3. The slotted bar B, with its bars, bolts, and braces, when so constructed and arranged that the sweep D and the teeth T T can be used interchangeably in the plow, substantially in the manner and for the purposes described.

**110,988. JOHN M. P. LYON,** Bellefonte, Ala. Cotton Scrapers and harrows. Jan. 17, 1871. Antedated Jan. 9, 1871.

Claim. The scraper E, in combination with a cotton harrow, constructed and operated as described, for the purpose hereinbefore specified.

**113,367. THOMAS H. TRANTHAM,** De Soto county, Miss. Cotton Scrapers. Apr. 4, 1871. Antedated Mar. 29, 1871.

Claim. The combination and arrangement of the slotted share C, slotted plate E, screw F, and standard G, as and for the purpose hereinbefore set forth.

**113,625. JOHN CHARLES CAMERON,** Madison Station, Miss. Combined Plows and Scrapers. Apr. 11, 1871.

Claim. In combination with a plow, the "scraper" or extension C, constructed and applied substantially as and for the purposes herein shown and described.

**118,946. EZEKIEL PICKARD JONES** and **JAMES LAFAYETTE HARRELL,** Hertford, N. C. Cultivators. Sep. 12, 1871.

Claim. The scraper F, slotted plate E, bolts  $c c$  bent lever D, head  $o$ , guide H, beam

A, handles B, B, and plow C, all constructed and arranged for operation as herein shown and described.

**126,165. ZACHARIAH TOMS** and **LUCULLUS W. McMULLAN,** Hertford, N. C. Cultivators. Apr. 13, 1872.

Claim. 1. The combination of the bar A, and turning shank D and the scraper, substantially as set forth.

2. The combination of the scraper, the adjustable shank, and the adjustable brace-bar, substantially as set forth.

3. The combination of the slotted bar A, the eyebolt  $d$  the turning shank D, the adjustable brace-rod, and the scraper, these parts being constructed to operate substantially as set forth.

**126,991. ASA B. SPRINGSTEEN,** Schodack Landing, N. Y. Cultivators. May 21, 1872.

Claim. The combination, with a surface-scraper, E, of a leveler, F, provided with the root extractor  $f^1$  and arranged in the rear of said scraper, as described.

**128,390. JAMES R. HARRIS,** Hazelhurst, Miss. Plows. June 25, 1872.

Claim. 1. The combination of the standard C, mold-board A, and scraper D, when the latter is formed with the flange F, and secured to the standard C by the bolts E E, and arranged substantially as specified, and for the purpose set forth.

2. The scraper D, when constructed with the flange F, and gradually rising cutting-edge substantially as and for the purpose described.

**128,393. FRANK E. HEIWAY** and **JOHN J. WALLS,** Hazelhurst, Miss. Cotton Culivators. June 25, 1872.

Claim. The combination of the slotted reversible wing or attachment D, with the mold board A, and fastening bolts  $a$ , provided through the front of the said mold-board and adjacent to its land-side edge, substantially as and for the purpose herein set forth.

**129,265. ANDREW P. BARRY,** Ashland, Miss. Plows. July 16, 1872.

A concave plate attached to the front of the mold board and projecting beyond the landside to scrape off the surface of the ridge on which the cotton is planted.

Claim. The scraping or "barring" off plate C attached to the mold-board of a plow, and arranged substantially as specified.

**132,828. JAMES R. HARRIS,** Hazelhurst, Miss. Plows. Nov. 5, 1872.

Claim. The scraper D, having the cutting edge slightly convex from  $a$  to  $b$ , and concave from  $b$  to  $d$  combined with a plow, substantially as and for the purposes herein set forth.

**133,467. CYRUS MARSH,** 2d, Natchez, Miss. Cultivators. Nov. 26, 1872.

The wheels are made very narrow so as to

ent into the ground, in order to guide the machine and keep it steady.

Claim. The machine described consisting of the central beam A, with its removable shovel plow, wheels  $\alpha$   $\alpha$  elbow irons  $a^1$   $a^1$ , cross beam B, bars C C, side beams D D, with their shares, and the handles E, all combined and arranged as described, for the purpose set forth.

**134,080. CYRUS MARSH,** 2d, Natchez Miss. Cotton Scrapers. Dec. 17, 1872.

Claim. 1. In a machine of substantially the described construction, the combination of sharp guiding wheels in front with guiding heel plates in rear, substantially as described.

2. The combination in a single machine, of guiding and elevating mechanism, substantially as described, the frame, and a pair of scraper blades having heel plates attached thereto, all substantially as described, for the purpose set forth.

**134,275. JAMES R. HARRIS,** Hazlehurst, Miss. Plows. Dec. 24, 1872.

Claim. The mold board B, having its outer or rear portion cut away, from  $y$  to  $b$  at an angle of about forty or forty-five degrees, in combination with a plow joint and scraper, substantially as and for the purposes herein set forth.

**134,632. NOAH BELL and HENRY WINFIELD,** Pantego Township, Beaufort County, N. C. Cotton-Cultivators. Jan. 7, 1873.

Claim. 1. The construction and arrangement of the bars C  $d^1$  E $^2$ , land-sides D D', and clip  $d^2$ , substantially as specified.

2. The diverging flange clearers H secured to the land sides D D', at their forward ends, in combination with the oblique shovels F F', substantially as specified.

3. The slotted, pivoted, and obliquely-arranged shovels F F', saddles E E $^1$  and bent standards  $d^2$  E $^2$ , combined and arranged substantially as specified.

**135,863. JAMES P. SWOFFORD,** Brownville, Miss. Scraper Attachments for Plows. Feb. 11, 1873.

Claim. The combination, with the plow-beam A, of the adjustable and curved beam D provided with the scraper G, the said beam being perforated, as shown, and bolted to the beam at c through one of said perforations, and connected at its front end to the lower end of the short arm d pivoted to the plow-beam, all substantially as and for the purposes herein set forth.

**139,750. CHARLES ZOCHER,** Augusta, Ga. Cotton-Cultivators. June 10, 1873. Filed Mar. 29, 1873.

A series of notches or offsets, inclined backward and upward, are formed upon the sweep so that it may clear itself of trash.

Claim. The sweep B, having its cutting-

edge notched and the portion of said edge between the offsets  $\theta^1$ , inclined, as specified, for the purpose of enabling the sweep to clear itself of obstructions, as set forth.

**141,355. WILLIAM JARRELL,** Humboldt, Tenn. Cotton-Scrapers. July 29, 1873. Filed June 14, 1873.

An extension or toe piece is formed on the plow-frame extending leftward from the front standard, by which a firm seat is formed for the scraper, and its center is brought in the line of draft.

Claim. The obliquely-extending frontward and leftward toe-piece F G H of the standard C, in combination with the scraper I and beam E, all constructed and arranged as shown and described.

**144,509. JAMES M. COBB,** Jackson, Tenn. Cotton-Scraping Plows. Nov. 11, 1873. Filed July 22, 1873.

Claim. The combination of the frame, consisting of the top bar D, outwardly-bent standards E D curved downward and forward, as described, and the foot-piece G extending to the right of the standards, with the scraper C, the beam A, and the handles B B, all substantially as set forth.

**146,848. FREDERICK G. THURSTON,** New York, N. Y., assignor to M. Ma Del Gado and Joaquin Llera, same place. Furrow Scrapers. Jan. 27, 1874. Filed Aug. 23, 1873.

The scraper-blade has oblique ends narrowing toward the rear, where the blade is sharply cut away, to gather the soil and allow it to fall over the center.

Claim. In a furrow-scraper, the plate A provided with lateral vertical flanges  $a^1$   $h^1$  converging to the cut-away central portion of said plate, as and for the purpose set forth.

**147,633. ELIAS HAIMAN,** Columbus, Ga. Sweeps for Cultivators and Plows. Feb. 17, 1874. Filed June 7, 1873.

The sheet-metal cultivator-sweep or winged shovel is strengthened centrally by a bead or ridge "struck up," the wings also being provided with flanges turned upon their rear edges.

Claim. As a new article of manufacture, a sheet-metal sweep, A having the ribs  $a^3$   $a^4$   $a^5$ , arranged as described.

**6,887. ELIAS HAIMAN,** Columbus, Ga. Sweeps for Cultivators and Plows.

Patent No. 147,633. Feb. 17, 1874. Re-issued Feb. 1, 1876. Filed Dec 18, 1875.

Ridges and flanges formed upon the sweep to stiffen and strengthen it.

Claim. 1. The ridge or bead  $a^3$ , formed upon the middle part of the sweep, between the bolt hole and the point, substantially as herein shown and described.

2. The flange  $a^4$ , formed upon the upper edge of the wings  $a^1$ , substantially as herein shown and described.

**3.** As a new article of manufacture, a sweep, A, having the bead  $a^3$  and the flanges  $a^4$ , arranged as described.

**151,248. FRANCIS M. SHIELDS,** Hashqua, Miss., assignor to himself and John C. Holmes, same place. Plow-Supporters. June 2, 1874. Filed Oct. 18, 1873.

Claim. The wedge-shaped plow-iron support A, having flange E on its upper face, hollowed out and provided with points G on the lower, and having central slot H, as and for the purpose specified.

**155,893 W. SANDLIN,** Minden, La. Cotton-Scrapers. Oct. 13, 1874. Filed July 11, 1874.

The scraper rests upon the colter edge of the plow, and will remove the surface-earth close to the rows of plants.

Claim. The concave scraper A, provided with lug  $a^1$  that rests against the land-side, lug  $a^2$  that rests upon the upper side, the shank  $a^3$ , as shown and described.

**158,457. G. W. BEARD,** Grenada, Miss. Cotton-Scrapers. Jan. 5, 1875. Filed Nov. 16, 1874.

Claim. The combination, with bar-share plow C, of the scraper D, concaved on its working face, and having the edge  $d^2$  corresponding to that  $c^2$  of plow, the said scraper and plow being secured to separate standards, and relatively arranged, as and for the purpose specified.

**158,580. ARTHUR B. FARQUHAR,** York, Pa. Plows. Jan. 12, 1875. Filed Sep. 19, 1874.

Claim. The sweep B, made of a triangular plate of steel, the shorter sides forming the cutting-edges, and shaped to present a level point rising to the rear in regular curved lines, and having the notches G cut away, as shown and described, forming the wings C, with curved edges L, all as and for the purposes set forth.

**159,658. M. EUSTACE,** Highfield, Drumcondra, and **JAS. KENNAN**, and **T. KENNAN**, Dublin, Ireland. Machines for Thinning or Spacing Crops. Feb. 9, 1875. Filed Dec. 6, 1873.

Claim. **1.** The combination of two guide-frames, II and IV, fixed to transvers bars B B, with other frames, I, III, and V, connected to the transverse bars by guides I and springs, chains, or links K, so as to be capable of independent vertical motion, substantially as herein described in reference to Figs. 5, 6, and 7 of the drawings.

**2.** The guides A<sup>1</sup> A<sup>2</sup>, formed of metal bars, and secured so that they can be adjusted in length and position to suit drills of different widths, substantially as described with reference to Figs. 1 and 5 of the drawings.

**3.** The combination of a straight guide, A<sup>2</sup>,

with a curved guide, A<sup>1</sup>, and hoe-blade E, placed either behind or in front of A<sup>1</sup>, substantially as described with reference to Fig. 14 of the drawings.

**161,256. RODERICK McRAE,** Fayetteville, N. C. Combined Cotton Choppers and Scrapers. Mar. 23, 1875. Filed Dec. 1, 1874.

A reversible blade with upturned ends, the wide edge designed for scraping, and the narrow for chopping, cotton.

Claim. The reversible double-edged scraping-share and chopping-blade H, having turned-up sides or vertical oblique flanges L to adapt the same for use, in the manner and for the purpose herein set forth.

**170,632. T. J. LEE,** Pender County, N. C. Cultivators. Nov. 30, 1875. Filed Oct. 8, 1875.

A surface-scraper attached to a plow-beam, to operate in advance of the turn-plow-beam, and a hillings-scraper secured to the land-side.

Claim. In combination with an ordinary plow, C, the front and rear blades A and B, substantially as and for the purposes set forth.

**178,769. ISAAC F. HARRISON,** Rodney, Miss. Corn and Cotton Cutters and Scrapers. June 13, 1876. Filed May 17, 1876.

An adjustable curved cutter is secured to the beam of a common corn or cotton plow, at a point near the rear end of the land-side. The vertical part of the cutter is some six or eight inches from the beam, and by means of a slot can be adjusted to a greater or less distance. The lower end of the cutter curves inward, and nearly forms contact with the heel end of the land-side of the plow.

Claim. The cutter, bent or curved, as shown and described, to adapt it for attachment to a plow, and for adjustment laterally as shown and described.

**182,915. LEROY C. GILLASPIE, Sr.,** Brownsville, Tenn. Cotton-Scrapers. Oct. 3, 1876. Filed Dec. 20, 1875.

A slotted brace to regulate the angle or pitch of the scraper.

Claim. In combination with the plow-foot B, having its lower end narrowed, as shown at a, the scraper-wing D connected thereto by the pivot-bolt b, and the slotted angle-regulator G, connected to the wing and to the plow-foot, substantially as shown and described.

**183,199. JOHN R. NEWTON,** Rusk, Tex. Plows. Oct. 10, 1876. Filed June 12, 1876.

The scraper is attached to the beam by hangers, is placed obliquely, and adjustable both vertically and horizontally. The mold-board proper is divided into two sections, the upper section being adjustable.

Claim. The combination of wing C, point D, and scraper F, combined and arranged on

a plow-frame, to operate together as set forth.

**185,073. H. C. BUHOUP,** Pittsburg, Pa.

Cotton-Sweeps. Dec. 5, 1876. Filed Nov. 8, 1876.

Claim. 1. A cotton-sweep constructed with a detachable point, the latter provided with a rear extension, which engages by lug and socket with the standard, and is firmly secured to same by the binding action of the blade, substantially as and for the purpose described.

2. The combination of the standard of a cotton-sweep with a blade and removable point, the two latter seated in counterpart recesses in the front supporting projection of the standard, and attached to same by bolt-and-eye engagement of the standard and blade, substantially as and for the purpose described.

**185,551. THOS. R. LANDON,** Sladessville, N. C. Cultivators. Dec. 19, 1876. Filed Aug. 21, 1876.

Claim. The angular standard-bars F H, slotted in their vertical arms, in combination with the braces, I, having slotted horizontal upper arms, and with the slotted adjustable cross-bar E and beam A, substantially as herein shown and described.

**185,722. H. C. BUHOUP,** Pittsburg, Pa., assignor to Alex. Spear & Sons, same place. Cotton - Sweeps. Dec. 26, 1876. Filed Nov. 8, 1876.

The seat or connecting flange is formed upon the point, to adapt it for attachment to old sweeps after their worn points have been cut off.

Claim. The combination, with the blade of a cotton-sweep, of a detachable point constructed with a depressed rear triangular extension, which forms an intermediate vertical face, against which abuts the front edge of the blade of the sweep, the point being secured to the blade by means of a bolt passing through the blade and rear extension of the point, substantially as and for the purpose set forth.

**186,611. E. H. & S. D. PERKINS,** Visalia, Cal. Cultivators. Jan. 23, 1877. Filed June 6, 1876.

Claim. 1. A pair of cutter-wings, D D', made to overlap each other within a slot or foot C, as and for the purpose set forth.

2. The slotted adjustable bar E, having cross-head e', in combination with wings D, having notches d', as and for the purpose specified.

**196,244. CHARLES W. McMURRY,** Gadsden, Tenn. Cotton - Scrapers. Oct. 16, 1877. Filed July 11, 1874.

Claim. In a cotton-scraper, the frame for supporting the scraper, constructed of the top beam C, having ears e e', with inclined slots c' the rear upright D, the slotted and sharp-edged upright D', and the inclined triangular sole-plate E, having its land-side edge rounded, as shown at f, and thickened by the longitudinal flange g, all substantially as and for the purposes herein set forth.

**199,590. WILLIAM W. SPEER,** Pittsburg, Pa. Cotton-Sweeps. Jan. 22, 1878. Filed Sep. 28, 1877.

Claim. A cotton-sweep having a standard seat or bearing, E, partly on the stem and partly on the body of the sweep, the arms D D and stem B being jointed by the angular braces C, which are formed with curved edges a, substantially as set forth.

**206,505. HENRY D. TERRELL,** Starrsville, Ga. Scraper Attachments for Shovel Plows. July 30, 1878. Filed June 14, 1878.

Claim. The scraper having a flat middle portion and two side wings, which are inclined to the rearward, and provided with downwardly and rearwardly twisted upper edges and upper corners, curved forward, as and for the purpose set forth.

**208,088. WM. W. HARVEY,** Clarksville, Tex. Cotton-Cultivators. Sep. 17, 1878. Filed July 20, 1878.

The rollers have flanges, which act as colters and cut the earth near the plants, while the plows serve as scrapers, thus preparing the cotton for chopping out to a stand.

Claim. A cotton-cultivator in which the rollers f, cutters i, and scrapers l are combined and relatively arranged as and for the purpose specified.

**216,059. JAMES L. PUGH,** Hamburg, Ark. Corn and Cotton Scrapers. June 3, 1879. Filed Mar. 5, 1879.

Claim. The combination of the bracket B, its bolts a a', slot i, the blade A, its series of openings e, and brace C, and its adjustable nut m, whereby the blade may be applied to the beam in front of the plow, and adjusted angularly, laterally, and horizontally, and secured after adjustment, as specified.

**217,597. CHARLES E. ESTES,** Columbus, Ga. Cotton Wing - Sweeps. July 15, 1879. Filed May 13, 1879.

Claim. The combination of a standard A, having wings a' and point C, with the thin narrow blades B, provided with transverse slots b', and bolted to the wings, so that their forward ends will be clamped between the said wings and the point, substantially as shown and described.

**219,456. GEORGE B. GAY,** Opelousas, La., assignor to himself and Rudolph Mayer, same place. Scraper and Sweep Attachments for Plows. Sep. 9, 1879. Filed July 22, 1879.

Claim. The combination of the triangular plate A, provided with the downwardly - projecting perforated lug or flange a' at the rear of the inner edge, and having a hole, a'', formed through it near the forward part of the inner edge, the rod C, provided with a shoulder and nut at its lower end and a hole or slot at its upper end, and the two bolts and nuts

B D, with each other, to adapt the device to be attached adjustably to the land-side or bar of a plow, substantially as herein shown and described.

**220,700. LUKE W. CARRAWAY,**

Dry Grove, Miss., assignor to James B. and Charles W. Carraway. Cotton Scrapers. Oct. 21, 1870. Filed Aug. 25, 1878.

Claim. The combination of an adjustable scraper having on its rear surface a series of indentations in the arc of a circle, a standard or bar having at its lower end a point or projection engaging with the indentations, and a bolt and nut, substantially as described.

**222,367. JAMES M. RICHARDS,**

Brundidge, Ala. Cotton-Scrapers. Dec. 9, 1879. Filed Sep. 24, 1879.

Claim. 1. The combination of the beams A and D and intermediate block G, constructed to present bearings at different angles, and devices for clamping the blocks and beams together, substantially as described.

2. The combination of the beams A and D, block G, and connecting-bolts, hook H, stay J, and standards B, substantially as set forth.

**222,541. RICHERSON W. SPENCER,**

New Lexington P. O., Ala. Cotton-Cultivators. Dec. 9, 1879. Filed May 22, 1879.

Claim. 1. The within-described cultivator, consisting of the fixed longitudinal pieces A A, the adjustable pieces B B, the cross-pieces C C, axle D, wheels E E, shaft F, provided with arms c' c', standards G G, scrapers H H, and cog-wheels I and K, constructed and arranged substantially as herein shown and described.

2. The shaft F, provided with the arms or spokes c' and the cog-wheel K, and revolving in bearings b', attached to the under side of the frame, about midway of its length, in combination with the shaft D, provided with the cog-wheel I, the frame A, and the scrapers H, substantially as and for the purposes set forth.

**222,905. ABNER R. HILL,**

Tex. Cotton-Scrapers. Dec. 23, 1879. Filed Nov. 14, 1879.

Claim. The scraper e, formed substantially as described, and having the shank d secured directly to the standard, and the extension or wing g, extending across the front of the plow-standard, substantially as shown.

**227,802. HENRY L. LYON,**

Ark. Cotton-Scrapers. May 18, 1880. Filed Feb. 17, 1880.

Claim. In combination with the draft-beam A, head-block B, and adjustable scraper C, the sweep G, secured to the arms H, embracing the head-block B, and held thereon by means of the bolts F, substantially as specified.

**229,318. RICHARD A. JOHNSON,**

Newnan, Ga. Cotton-Cultivators. June 29, 1880. Filed May 27, 1880.

Claim. In combination with a plow or

cultivator standard and a cultivator tooth or shovel, a combined gnard and cutter, consisting of the vertical wing G, which prevents the earth from being thrown upon the cotton, and the wing I, which serves as a scraper, substantially as shown and described.

**232,133. RICHARD A. JOHNSON,**

Newnan, Ga. Cultivators and Scrapers. Sep. 14, 1880. Filed July 22, 1880.

Claim. In a cotton cultivator and scraper, the combination of the standard A, wing B for protecting the young plants from the dirt, wing C, having the slot D, the bolt G, and shovel H, the slot D in the wing C being of such a shape that the wing can be adjusted into different positions, substantially as shown.

**247,977. ROBERT H. WINGATE,**

Chapel Hill, Miss. Scraper Attachments to Plows. Oct. 4, 1881. Filed July 25, 1881.

Claim. The combination of a plow with a scraper having its shank extending backward and secured in position by means of a clamp to the standard, and fastened to the beam by means of an adjusting-screw and a brace-rod, substantially as shown and described.

**248,471. RICHARD A. JOHNSON,**

Newnan, Ga. Cultivators. Oct. 18, 1881. Filed July 28, 1881.

Claim. The combination of the standard A, having the shoulder B, the cultivator-point, the adjustable wing, the bolt, and the curved adjustable guard, the guard having an adjustment of its own independently of the wing, substantially as shown and described.

**248,569. JOHN BRANTLY,** Lillington, N. C. Cotton-Sweeps. Oct. 25, 1881. Filed Mar. 14, 1881.

Claim. The combination, with the plow-standard a, of the plates e, pivoted thereto, recessed plate g, secured between the plates e, pin n, adjustable guide-plate i, having notch k, wedge l, and curved adjusting-arm f, having a slot at its upper end, substantially as described, and for the purpose set forth.

**248,774. HOSEA P. MEGGS,** Polkton, N. C. Cotton-Scrapers. Oct. 25, 1881. Filed May 14, 1881.

Claim. 1. In a plow or scraper, the pivoted side plate or fender, e, having an adjusting-slot, g, and a key-slot, l, and in combination therewith a colter, k, having a headed bolt or stud, n, substantially as specified.

2. In a plow or scraper, the combination, with the side clamp, z, and the pivoted fender e, having the adjusting-slot g and the key-slot l, of the reversible colter k, having the headed bolts or studs n at equal distances from its ends, substantially as specified.

3. The combination, with the plow-beam and its standard or stock, of the side clamp on the plow-beam, the angularly-adjustable slotted fender pivoted to said standard or stock, its

colter slot, and the reversible colter engaging said fender and side clamp, substantially as specified.

**251,784. HOSEA LINDSEY,** Asheville, N. C., assignor of one-half to Emo H. Merrimon, same place. Corn and Cotton Cultivators. Jan. 3, 1882. Filed May 16, 1881.

Claim. 1. In a corn or cotton cultivator, the central plows or cultivators, constructed substantially as described, in combination with two reversible and laterally-adjustable rotating harrows in the rear of the plows, substantially as set forth.

2. In a corn or cotton cultivator, the adjustable plows and scrapers, in combination with two laterally-adjustable rotating harrows in the rear of the plows, substantially as described.

**254,629. JAMES L. FARNSWORTH,** Dalton, Ga. Cotton-Scrapers. Mar. 7, 1882. Filed July 14, 1881.

Claim. The combination, with the frame and teeth of a harrow or cultivator, of the coverers C C, provided with staples e e and slots b b, whereby the said coverers are adapted to be adjusted and secured upon the teeth in the several positions specified, substantially as and for the purpose set forth.

**257,666. CHARLES C. DAVIS and WILLIAM H. MERCER,** Mercer, S. C. Cotton-Scrapers. May 9, 1882. Filed Feb. 23, 1882.

Claim. In a cotton-Scraper, the combination of the two beams A, each made in a single

piece with the standards, and having the handles D, secured between their rear ends, the shaft B, having the two cutting-wheels G secured thereto, and the scrapers C, which cut close to the outsides of the wheels, substantially as shown and described.

**262,408. DABNEY HARDY,** MacFarland's Va. Combined Scrapers and Cultivators. Aug. 8, 1882. Filed Apr. 25, 1882.

Claim. 1. In a scraper and cultivator, the combination, with the scraper F and blade M, of the separable flange N, substantially as herein shown and described, whereby a small amount of soil will be thrown around the plants, as set forth.

2. In a scraper and cultivator, the combination, with the plow-beam A, and the standards K, of the standards O, having their forward ends curved upward and slotted, the jointed crank-rod W, and braces Z, substantially as herein shown and described, whereby the said standards will be firmly supported and can be readily adjusted, as set forth.

3. In a scraper and cultivator, the combination of the beam A, standard C, brace J, standard K, cross-bar W, arms Z, scraper F, and stay H, substantially as and for the purpose set forth.

4. In a scraper and cultivator, the combination of the standard O, having recesses V, the separable point R, and the shovel O, having tooth U, and the strap T, substantially as shown and described, whereby said shovel and point are firmly and adjustably connected with the standard, as set forth.







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| Fleischmann, C. L.                    | 310   | 188   | Pierce, W.                               | 317   | 190   |
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| Foreman, F. L.                        | 313   | 180   | Potter, S. T. W.                         | 308   | 192   |
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| Foreman, F. L.                        | 315   | 190   | Railey, J. A.                            | 330   | 196   |
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| Furnas, S.                            | 327   | 195   | Rickard, L.                              | 314   | 189   |
| Gavett, H. L. F.                      | 304   | 180   | Roberts, J. W.                           | 320   | 192   |
| Hale, O. F.                           | 322   | 162   | Roult, A. P.                             | 305   | 186   |
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## DITCHING.

**500. THOS CLATON**, Shelbyville, Ind.  
Excavating Machines. Dec. 1, 1837.

Claim. The form of the bottom of the plow, being made with two plane surfaces, instead of curved, as is usual, the line forming the angle of these two planes being so situated that the weight of the earth, when the box is full, will throw the front of the plow up, as herein set forth.

**2,440. H. AIKEN**, Franklin, N. H. Machines for Excavating Ditches. Feb. 1, 1842.

Claim. The combination of the cutter with the winding trough for making ditches, whether made in the manner above described or in any other mode substantially the same.

**2,512. C. K. BARTLETT**, Geneseo, Ill.  
Ditching Plows. Mar. 23, 1842.

Claim. 1. The combining of the angular trough and cutters B B and C C, made substantially in the manner set forth, and these thus combined in combination with a platform, A A, and a trough or channel, G G', on the upper surface of the platform, the respective parts being arranged and operating substantially as set forth.

2. The so arranging of the cutters C C as to leave the space E between them for the free escape of weeds, as described.

**2,515. C. K. BARTLETT**, Geneseo, Ill.  
Ditching Plows. Mar. 28, 1842.

Claim. 1. The forming of the main body of the wood-work thereof of a plank which is to run on the ground, in the manner herein set forth, and having combined with it a share, colter, mold-board, and land-side, the operating parts of which extend below the bottom of the plank to the depth of the intended furrow.

2. The forming of the share, colter, and land-side of one continuous piece of metal bent at right angles, in the manner and for the purpose herein fully made known.

3. The manner of combining and arranging the timber G G and the share colter, and mold-board of the plow so as to constitute one piece by their combination, with each other, which combined piece may be adjusted so as to regulate the depth of the furrow by means of screws and nuts or other devices substantially the same with that described.

**2,897. HORACE CLEVELAND**, Fort Wayne, Ind. Ditching Plows. Dec. 31, 1842.

Claim. The manger in which I have combined the lifters and mold-boards with the double share and middle and side cutters, so as to constitute a machine for ditching and embanking, arranged and operating substantially in the manner herein set forth.

**3,538. JAMES HERBERT**, Lagrange

Co. Ind. Ditching Plows. Apr. 13, 1844.

Claim. The employment of rotating cutter-wheels attached to the forward end of the frame in the machine referred to, for cutting the earth and sod, as described above, in combination with the said plow and side cutters, and the side cutters consisting of two or more parts each, as above described, and connected together for the purpose and in the manner above mentioned.

**3,757. EDWIN OWEN**, La Port, Ind.  
Ditching Plows. Sep. 24, 1844.

Claim. 1. The combination of the triangular horizontal knife and shield, in the manner and for the purpose set forth.

2. The combination of the conductors with the mold-board, in the manner and for the purpose herein specified, said mold-board being made to slant under at its front edge to facilitate its clearing.

**4,107. DANIEL F. STAFFORD**, Rochester, Ills. Ditching Plows. July 10, 1845.

Claim. 1. The manner in which I have combined the wheel C and the lever or tiller E with the beam of the plow for the double purpose of guiding and of raising or lowering the fore end of the mold-board, as set forth.

2. The manner of combining and arranging the wheel H with the plow by means of its cranked shaft and treadle, thereby enabling the attendant, who rides upon the seat F, to raise the rear end of the mold-board and to depress the point, as described.

3. The combining of the horizontal wheel L and the plank or piece N, which it sustains, with the plow, thereby enabling the instrument to form a trench of increased width when required.

**4,113. ROBERT COMMINGS**, Lima, Ind. Ditching Machines. July 14, 1845.

Claim. The combination and arrangement of the mold-boards H and I, formed in the manner and for the purpose above described, with the twisted bottom i, and ring j, and base a, and adjustable cutters d, as hereinbefore described.

I make no claim to the other points of the machine, as they are common to all ditching-machines.

**4,740. W. C. BUSSEY**, Rock Grove, Ills. Ditching-Plows. Sep. 3, 1846.

Claim. The combination of two ditching-machines in the manner described, so that the sods cut from two parallel ditches shall be elevated and placed with the grass out in a continuous ridge between said ditches at one operation, in the manner and for the purpose set forth.

**4,751. SAMUEL THRAILKILL,** La Fayette, Ind. Ditching-Plows. Sep. 10, 1846.

Claim. In combination with the adjustable mold-board, adjusting the depth of the forward part of the machine substantially as described.

**5,148. HENRY B. SOMMERS,** Greenfield, Ind. Turf-Plows. June 5, 1847.

Claim. 1. The above-named toothed roller,  $f$ , in combination with the shares  $h h$ , operating in the manner and for the purpose described.

2. The forward cutter,  $d$ , in combination with the wheels  $i i$ , and shares  $h h$  for leveling the bogs of turf, in the manner described.

3. The vertical cutters  $n n$ , in combination with the shares  $h h$ , for separating the furrow from the land border, as described.

**8,341. H. L. F. GAVETT,** Jackson, Mich. Ditching Plows. Sep. 9, 1851.

Claim. The combination of the cutters and mold-boards for cutting and turning the sod on edge with the inclined adjustable spring-rollers for raising, packing, and forming the sods into a fence as herein described and represented.

**9,709. JONATHAN W. MORRILL,** Hampton Falls, N. H. Ditching Machines. May 10, 1853.

Claim. 1. The employment of the swinging cutters  $D D D$ , in combination with the swinging spade  $J$ .

2. The combination of the swinging cutters, swinging spade, and lever.

**10,815. JOSEPH C. TIFFANY,** Coxsackie, N. Y. Ditching Plows Apr. 25, 1854.

Claim. 1. One or more adjustable colters or cutters, in combination with a permanent colter, and both in combination with one or more adjustable elevators, with a mold-board or mold-boards attached substantially as described, for the purposes set forth.

2. The flexible adjustable spreader, Fig. 3, for moving the earth from or returning it to the ditch, as required, substantially as described.

3. The flexible adjustable spreader, Fig. 3, in combination with the plow, for the purpose set forth.

4. The devices substantially such as herein described, or their equivalents, for changing the position of the rear end of the beam, in combination with the angular slot and curved plate, substantially as described.

I do not claim any of the parts or devices above enumerated separately or alone, but in combination, and in combination only.

**10,886. CHARLES K. FARR,** Auburn, P. O., Miss. Cultivators. May 9, 1854.

Claim. The bed A, with inclined sides  $b$ , as described, which, following the trace of the

colter, renders the sides of the furrow compact and prevents the falling in of the earth, substantially as herein set forth.

**17,809. A. P. ROUTT,** Somerset, Va. Ditching Machines. July 14, 1857.

Claim. The employment in connection with a double mold-board plow of a heavy V-shaped or taper roller G, said roller being hung so as to run behind and between the two mold-boards, and so as to be capable of revolving and adjusting itself to the different depths at which the plow may be set to cut, substantially as and for the purpose set forth.

**19,597. WM. WISE,** Washington, D. C. Plows. Mar. 9, 1858.

Claim. 1. The combination of the auxiliary share with the plow, substantially as described.

2. The combination of the guide bar with the plow, substantially as described.

**20,689. MOSES BARROWMAN,** Buffalo, N. Y. Ditching Plows. June 29, 1858.

Claim. 1. The center piece, A, for the purpose of a main frame or support for the other parts of the plow, substantially as herein set forth.

2. The arrangement and combination of the adjustable wheels G G, the arms H H, shaft K, lever J, and segment I relatively to each other and the plow, as herein described.

**25,377. E. S. BARTLETT,** Romulus, N. Y. Ditching Plows. Sep. 13, 1859.

Claim. 1. The combination of the arms D D D, brace H, rods d d, and blocks F F, substantially as and for the purpose set forth.

2. The mode of attaching and adjusting the shares E E E, by means of the packing blocks l l, in combination with the bolts b b and arms D D, substantially in the manner specified.

**28,320. C. O. WEST, J. R. SMITH, JOHN CAREY, GEORGE JANNEY, R. HUNT, AMOS HOCKETT, D. WEST, ELIEL WEST, and J. GARNER,** Martinsville, Ohio. Ditching Machines. May 15, 1860.

Claim. 1. The employment of the fin M, in combination with the inclined bottom L, as and for the purpose shown and described.

2. The combination of the rib e<sup>1</sup>, with the inclined bottom B, as and for the purpose set forth.

3. The employment of a hinged triangular beam A, and adjustable sled F, in combination with the plow, as and for the purposes shown and described.

4. The combination with the plow, the beam A, and sled F, of the adjustable pivoted brace rod K, standard I, and front brace rod J, as and for the purposes shown and described.

**29,258 ELIAS FORBIS,** London, Ohio. Capstans for Ditching Plows. July 24, 1860.

Claim. 1. The levers C C and cord *a*, or their equivalents, when both shall be operated in the manner and for the purpose substantially set forth and described.

2. The capstan B, hinges *a a*, tongue G, slide *e*, brace or lever *x*, in combination with levers C C, cord *d*, the whole being arranged in the manner and for the purpose substantially set forth and described.

**29,357. JAMES BROOKS,** Romulus, N. Y. Ditching Plows. July 31, 1860.

To use this plow I adjust the ground wheel, or pulley, at about four inches above the bottom of the share, and pin it fast; the guide bar I also place above ground at first; I then cut a furrow, and coming back on the opposite side of the ditch already begun, I cut again, follow, and throw out the dirt; I then change the clevis so as to alter the point of traction, and cut deeper, and alternate as before, so going on until the ditch is finished.

Claim. The combination and arrangement of the guide bar and colter share, substantially as described and set forth.

**29,647. ALLEN S. BALLARD,** Mount Pleasant, Iowa, assignor to himself and Joseph Howe, same place. Ditching Machines. Aug. 14, 1860.

This invention consists in constructing a plow with an inclined bottom, and furnishing it with a series of cutters and wings, arranged in such a way, and combined with two carriage wheels and an adjustable mechanism, that the plow will dig into the earth any desired depth to form a ditch or trench, and elevate the earth as rapidly as it is loosened by the cutters, which, after being elevated to the surface, will be thrown off from each side of the ditch by the wings of a plow and a scraper that follows in the rear of the machine.

Claim. The plow G G<sup>1</sup>, constructed substantially as described, with or without the movable bottom, in combination with the horizontal cutters *k k k*, cutters *e e*, and carriage A B, the whole being arranged and operating in the manner and for the purposes set forth.

**31,551. E. C MARTIN,** Muscatine, Iowa. Ditching Machines. Feb. 26, 1861.

Claim. The use in the described connection with a ditching plow of a V-shaped follower made in two halves K H, K H, connected together by adjustable hinges, with or without cross pieces J J, so as to adapt the implement to ditches of different width, in combination with two adjustable friction rollers N N, substantially as set forth.

**32,997. THOMAS HUTCHINSON,** Green Point, N. Y. Excavators. Aug. 6, 1861.

Claim. 1. The combination of the plow K with the scoop V, and the mechanism as described, by which the plow K is elevated or lowered.

2. The scoop V, in combination with the

plow K, and the mechanism as described, by which the movements of the scoop are regulated and controlled.

**35,403. BENJAMIN TOBIAS,** Washington, Ill. Ditching Machines. May 27, 1862.

Secured to the main beam by means of the standard and brace is a shoe, from the center of which rises a central inclined cutter. The sides of the ditch are formed by two inclined flaring cutters, the lower ends of which are secured to the shoe, and the upper ends to a cross-bar upon the beam. The dirt is thrown off by means of inclined planes and deflecting plates, so as to be piled up on each side of the ditch.

Claim. The combination of the deflecting plates L and bar C with the inclines J, cutters G H H, standard D, and shoe F, when the said parts are arranged and operate together, as shown and described.

**35,736. NELSON KIDDER,** Moscow, Iowa, assignor to B. F. Linville, same place. Ditching Machines. June 24, 1862.

Claim. The combination of the share E, and adjustable expanding wings I I, adjustable supporting wheel H h, and rollers O, all constructed and operating substantially as and for the purposes set forth.

**35,890. S. T. W. POTTER,** Scott, N. Y. Subsoil Plows. July 15, 1862.

Claim. The inclined curved mold-board and share, provided with the ledge or guard, arranged substantially as and for the purpose herein shown and described.

**43,060. GEORGE W. WIGGIN,** Exeter, Mass. Ditching Machines. June 7, 1864.

This invention consists in a combination of knives or cutters which cut from both the bottom and sides of the ditch, together with devices that elevate the soil to be removed and place it at one side of the ditch. The sides and bottom of the ditch are cut at one operation.

Claim. The combination of the sole plate P, mold-boards M M', curved and inclined as set forth, cutters C C' and K, and beams S S and fender D, or their equivalents, substantially as and for the purpose herein described.

**51,014. TUNIS J. BURHYTE,** Fond du Lac, Wis. Ditching Plows. Nov. 21, 1865.

Claim. 1. A ditching plow having its side cutters P inclined backward, as shown, and extending in an unbroken line from top to bottom, in combination with the horizontal cutter C, arranged substantially as shown and described.

2. The channel B, curved first to the left and then to the right, as shown and described.

3. Mounting the plow upon the independent adjustable side wheels L, and the adjustable

caster wheel I, arranged to operate as and for the purpose set forth.

4. The roller H, in combination with the roller O, provided with the curved teeth and the sprocket chain J, arranged to operate as herein described.

5. Providing a ditching machine, constructed as shown, with the adjustable draught rods T, as and for the purpose set forth.

**51,067. PETER LUGENBELL and JAMES S. ARMSTRONG,** Greensburg, Ind. Ditching Machines. Nov. 21, 1865.

Claim. 1. The combination of the excavating share H, and sides P P', of the side-discharging chute L, when said sides are formed in front with cutting edges, and all arranged to operate as and for the purposes herein set forth.

2. The arrangement of the parts H M M' N n O P P' Q and S S', or their mechanical equivalents, for expanding and contracting the chute and securing its free discharge or delivery, substantially as set forth.

3. The arrangement of the parts A B B' b' C D E F and G, for enabling our excavating and discharging apparatus to cut a ditch of any desired uniform depth.

**51,859. WILLIAM M. PERKINS,** LaFontaine, Ind. Ditching Machines. Jan. 2, 1866.

Claim. 1. The combination of the double colter, consisting of the cutters H H', with the screw and nut I K.

2. The adjustable mold-board M, adapted to act upon the raised mold at different depths of the share, as described.

3. The truck O O' P R R in combination with and drawn behind the plow, and operating as and for the purpose described.

**57,815. J. BALLARD, and T. J. MAGEE,** Cincinnati, assignor to themselves and P. Hults, of New Antioch Ohio. Ditching Machines. Sep. 4, 1866.

Claim. 1. The arrangement of sliding mold board J, lower and upper guides, D and I, elevating mechanism K L, and adjustable brace P, or their mechanical equivalents substantially as set forth.

2. In the described combination, the beam A, sloping sheath B, share C, and the colters G and H, as and for the purpose set forth.

3. The clinometer attachment W X, in combination with a supporting-truck, T, and regulating-screw U, for the purpose explained.

4. The shiftable handle N and ditch-wheel O, secured and operated as set forth.

**62,215. JOHN T. MILLER,** Iowa Falls, Iowa. Ditching Plows. Feb. 19, 1867.

Claim. 1. A ditching plow, constructed arranged, and operating substantially as herein described.

2. The sole B, with its plate b supporting the sward colter c, cutters c' c'', secured to the cross-frame C, the inclines e and mold-board

D, combined and arranged substantially as described for the purpose specified.

**62,325. CHARLES L. FLEISCHMANN,** New York, N. Y. Plows. Feb. 26, 1867. Antedated Feb. 14, 1867.

The angular cutters and mold board a trench and are stocked on a frame furnished with runners.

Claim. The use of runners herein described, in combination with angular or curved cutters and a mold board, substantially as above described.

**63,952. HENRY B. SMAWLEY,** Greensburg, Ind. Draining and Ditching Plows. Apr. 16, 1867.

The cutters of the mold-boards are placed at right angles to conform to the shape of the drain. The soil slides up an incline and is guided laterally by plates and discharged over the side of the plow.

Claim. The arrangement of the share B provided with two connected but distinct points, one in advance of the other, with the cutters C D, as constructed and connected to the beam, and the inclined plane K provided with a back bone or brace on its under side, the several parts being used together, substantially as and for the purpose specified.

**66,133. R. W. DOWNMAN,** Georgetown, D. C. Drain Plows. June 25, 1867.

Claim. The attachment of the double cone roller B, as herein described, to the ordinary drain plow, in the manner and for the purposes above stated.

**68,697. W. R. CLARK,** Indianola, Ill. Ditching Plows. Sep. 10, 1867.

The forked concave shares and curved side elevators raise the earth and project it to the side of the track.

Claim. The foot piece B, having its forward end made forked to incline the dirt and other obstruction toward the center, in combination with the brace bars E F C and D, side elevators G H, and side wings J K, substantially as described, for the purpose specified.

**72,953. DAVID WHISLER,** Union Township, Ohio. Ditching Machines. Dec. 31, 1867.

Claim. 1. The hinged platform T, for regulating the depth of the furrow or ditch, substantially as described.

2. In combination with the above, screw h, and springs t, substantially as set forth.

3. Axle B, wheels C C', beam A, platform T, screw h, springs t, and vertical knife P, all combined and arranged as and for the purpose set forth and described.

**2,923. DAVID WHISLER,** Union Township, Ohio. Ditching Machines. Patented Dec. 31, 1867, No. 72,953. Reissued May 5, 1868.

Claim. 1. The adjustable features of the mold-board and knives for cutting a wide or narrow ditch, substantially as described.

2. The peculiar construction of the shovel, as and for the purpose set forth.
3. The construction of the colter, as and for the purpose specified.
4. The hinged platform T, for regulating the depth of the furrow or ditch, substantially as described.

5. In combination with the above, screw h and spring t, substantially as set forth.

6. Axle B, wheels C C, beam A, platform T, screw h, springs t, and vertical knife P, all combined and arranged as and for the purpose set forth.

**73,560. E. WORTH and C. A. DAVIS,** Oswego, Ill. Ditching Machines. Jan. 21, 1868.

Claim. 1. The knives L, arranged to operate substantially as and for the purpose set forth.

2. The point F, jointed to the shoe E, in combination with the cutter-bar K, screw J, and standards I I, arranged to regulate the depth of the machine in the ground substantially as set forth.

3. The combination of the horizontal shares D, inclined flanges C, with cutter-bars K' K', knives L, and mold-board B, substantially as set forth.

**73,858. J. L. WILSON and J. R. HAWORTH,** Iowa Falls, Iowa. Ditching Plows. Jan. 28, 1868.

Claim. 1. The beams R R, the gauge beams N N, and wheels C, when combined and constructed as set forth.

2. The levers M M, constructed and operating in the manner specified.

3. The mold-boards d, the supplemental mold-boards E, in combination with lever P, the whole constructed and operating substantially as set forth.

4. The wheel U, in combination with colter T and shovel e, when arranged and operating substantially as described.

**74,729. STEPHEN W. STANDART,** Bellevue, Ohio. Plows. Feb. 18, 1868.

Claim. The arrangement of the land-side bar D, movable mold-board E, provided with metal knife at its bottom, bars F, bar H, and roller, operated by the lever I, the whole combined and used with the plow beam, in the manner and for the purpose set forth.

**76,237. W. A. NICHOLS,** West Liberty, Iowa. Ditching Machines. Mar. 31, 1868.

Claim. 1. The ditching machine, consisting of the forward plow C, attached to the beam B, the cutting disks D<sup>1</sup>, in front of said plow, in line with its outer edges, the cutting disk D, in line with its point, the rear plow C', having cutters a, and secured to the beam E, bearing the cutting disk D<sup>2</sup> and attached to the forward beam by the clevis and link, all constructed and arranged to operate as herein shown and described.

2. The rear plow C', when provided with

the vertical cutters a, for shaping the sides of the ditch, as herein shown and described.

3. The arrangement of the forward cutting disks D D<sup>1</sup> with relation to the forward plow C, as described, whereby the earth at the sides and center of the ditch is cut, to enable the plow to throw the dirt equally upon each side, as herein set forth.

**77,024. E. L. FOREMAN,** Rantoul, Ill. Ditching Machines Apr. 21, 1868.

The boards are set at an angle to each other, the rear of one being adjustable as to divergence. The platform is for the driver to stand upon, and the lever assists in regulating the machine as it is drawn along in the ditch.

Claim. The platform C, in combination with the lever F and sides A and B, when arranged and used as and for the purpose specified.

**79,851. PATRICK O'CONNOR and MORRIS COLLINS,** Decatur, Ill. Ditching Machines. July 14, 1868.

Claim. In combination with the beam A and the plow C, the mold-boards D, knives K and L, screw G, and guides I, so that the whole may be moved and adjusted by said screw, substantially as specified and for the purpose set forth.

**80,113. PHILLIP BALLARD,** Texas, Ohio. Drain Plows. July 21, 1868.

Claim. 1. The cutters C and D, share B, and adjustable wings E, constructed and arranged substantially as herein shown and described, in combination with the beam A, as and for the purpose set forth.

2. The combination of the gauge wheels F, curved arms G, lever H, support I, and curved adjusting arm or bar J, with each other, and with the beam A, substantially as herein shown and described, and for the purpose set forth.

**80,880. JASPER N. SMITH and WILLIAM O. BUCKLEY,** Washington, Ill. Machines for Cutting Open Ditches. Aug. 11, 1868.

Claim. 1. The hanging the ditcher in a frame, as shown in the drawings, thus avoiding the use of a beam, and avoiding all clogging under the beam in machines which make use of it.

2. The movable slides A A, in connection with the movable knives B B, so constructed as to carry out a greater or less width of earth as the machine is cutting.

3. The form of the rear of the nose, that is, the rear carried up, as shown, to avoid friction, and expanded, as shown, to support the slides.

**84,136. LEONARD RICKARD,** Danville, Ill. Ditching Machines. Nov. 17, 1868.

The wings are adjustable, so that the ditch can be made of any width desired.

Claim. The arrangement of the point I, mold-boards H H and B B, adjustable wings

D D, and braces C C, all constructed and operating substantially as herein set forth.

**86,294. E. L. FOREMAN**, Rantoul, Ill. Ditching Plows. Jan. 26, 1869.

Claim. The combination of the parts A B, bars C C, lever D, tongue E, with ring F, clevis H, and pin & secured to the bars D and e, all as herein shown and described,

**86,947. ISAAC S. SHEETS**, Troy, Ohio. Ditching-Plows. Feb. 16, 1869.

Claim. The manner of adjusting the winged plow by means of the adjustable plate D, with the brace J and with the cutters C C, two or more arranged in front, and operating as herein described, and for the purpose set forth.

**87,892. WASHINGTON WEST**, Pecksbury, Ind. Ditching-Plows. Mar. 16, 1869.

Claim. The improved ditching-plow herein described, when the same is constructed, in its said several parts, and used in the way and for the purpose substantially as herein set forth.

**90,495. M. E. BURTLESS**, Seneca Falls, N. Y. Ditching-Machines. May 25, 1869.

Claim. A ditching-machine, composed of the frame A, clevis-bar B, adjusting-wheel C, with bearings D, screw F, scoop G, colters H, and adjustable mold board K, the whole arranged as described, and operating in the manner and for the purpose specified.

**94,539 JAMES S. ANDERSON, and JAMES B. COOLEY**. Chark's Hill, Ind. Ditching-Machines. Sep 7, 1869.

Claim. 1. An improved ditching-machine, formed by the combination of the beams or sills A, adjustably connected by the screw-rods and nuts B, lifter or plow C, adjustable cutters E, guard-plates F, mold-board G, guard H, and apron I, whether provided with the guard-runner J or not, with each other, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the axle K, wheels L, bars or rods M, and cross-head lever N n', with the rear parts of the sills or beams A, substantially as herein shown and described, and for the purposes set forth.

**94,696. CALEB BARTHOLOMEW**, Etna, N. Y. Ditching-Machines. Sep. 14, 1869.

Claim. 1. The peculiar arrangement of the five teeth, when formed as described, that is, the three forward teeth of the one form, and the two rear teeth of the other, for the purpose of cutting the sides of the ditch and breaking up the dirt within it.

2. The pivoted handles f, pivoted standard i, adjustable bearing-wheels d, in combination with the frame A and teeth c, when arranged as and for the purpose described.

**97,183. E. L. FOREMAN**, Rantoul, Ill., assignor to Edward Foreman, same place. Ditchers and Graders. Nov. 23, 1869; anticipated Nov. 15, 1869.

Claim. The arrangement of the hinged side B and plow A upon the frame, as shown and described, when said parts A B are formed of sheet-metal, curved as shown, and extended beneath the wood-work to which the plates are attached, substantially as set forth.

**97,464. J. W. and M. H. WESTON**, Windsor, Ill. Ditching - Machines. Nov. 30, 1869.

Claim. An improved ditching - machine, formed by the combination of the mold-board A, land-side B, cross-bars or beams C, caster-wheel G H, lever I, and guide-bar J, with each other, said parts being constructed, arranged, and operating substantially as herein shown and described, and for the purposes set forth.

**97,606. WILLIAM CLINE, Jr.**, Clayton, Ind. Ditching - Machines. Dec. 7, 1869.

Claim. 1. The adjustable foot - piece E, provided at its lower end with a bit F, and running in an inclined position, substantially as and for the purposes herein set forth.

2. The combination and arrangement of the slotted beam A, cutter D, adjustable foot-piece E, and lever G, all constructed as described, and operating substantially in the manner and for the purposes herein set forth.

3. The broad curved scraper I, working up and down on guides b b, substantially in the manner and for the purposes herein set forth.

4. The sliding plate or guide J, provided with block K, at its lower end, and moving up and down on the guides c c, substantially in the manner and for the purposes herein set forth.

5. The combination and arrangement of the beam A, foot-piece E, cutter D, scraper I, and sliding guide J, all constructed as described, and operating substantially in the manner and for the purposes herein set forth.

**100,199. J. G. SISSON and LARK DELANA**, Arcola, Ill. Ditchers and Graders. Feb. 22, 1870.

Claim. The frame A, plows B and H, levers G and K, and keeper D, when combined so as to form a dumper and grader, substantially as shown.

**100,231. C. F. WOODRUFF**, Newbern, Tenn. Ditchers. Feb. 22, 1870.

Claim. The guide-rods c guards e, and pins c", combined and arranged substantially as described.

**100,664. WILLARD PIERCE**, Truxton, N. Y. Ditching Machines. Mar. 8, 1870.

Claim. 1. The arrangement of the beam A, beveled bar C, with plow-point D, sides F F, and bottom G, all substantially as shown and described.

**2.** The arrangement on the front end of the beam A, of the clevis B, and adjustable curved bar J with roller K, substantially as and for the purposes herein set forth.

**3.** The adjustable side wings H H, pivoted to the sides F F and made adjustable by means of the bolt *a*, passing through curved slots in the sides, substantially as shown and described.

**4.** The combination and arrangement of the beam A, clevis B, bar C, point D, cutter E, sides F F, bottom G, wings H H, handles I I, curved bar J, and roller K, all substantially as shown and described.

**101,729. DANIEL HARMON,** Coles County, Ill. Ditching-Plows and Hedge-Graders. Apr. 12, 1870.

Claim. **1.** The devices employed for connecting together and rendering relatively adjustable the plow-beam and truck, consisting of the bars D and E, the lever F, the divided or double standard G, and the stay-rods *h*, substantially as shown and described.

**2.** The hereinbefore-described spreader, consisting of the land-side L and mold-board M, connected together and made relatively adjustable by means of the rod N and bars O and P, substantially as set forth.

**3.** The means employed for regulating the draft of the spreader, consisting of the bar S, the wheel T, the bar U, the brace V, and the lever W, all constructed and arranged to operate substantially as shown, and for the purpose described.

**4.** The general construction and arrangement of the various parts of the hereinbefore described device, substantially as and for the purpose specified.

**102,599. ISAAC S. SHEETS,** Troy, Ohio. Ditching-Plows. May 3, 1870.

Claim. The combination of the plow-plate C, guide plate G, and wing H, when said parts are arranged on one side of the beam, and operated successively to raise the dirt from the furrow, guide it to the side of the ditch, and push it from the edge thereof, in the manner described.

**103,595. ROBERT G. FORSYTH,** Clayton, Ind. Ditching-Machines. May 31, 1870.

Claim. **1.** The double-acting ditching-plow herein described, having a triangular wooden frame, composed of the inclined supports B, horizontal beam A with swell *a'*, and prop C; also, provided with the flanged bits *a*, guides *e*, and the adjustable drag-beam D, to which are secured the mold-boards Z, when constructed and arranged to operate in the manner and for the purposes substantially described.

**2.** The adjustable drag-bar D, composed of the check-bars *s*, connected at each end by the pivot-blocks *t*, to which are attached the hitching-staples K, when constructed and arranged to operate in either direction, substantially as specified.

**3.** The foundation beam A, provided with the central swell *a'*, when constructed and arranged to operate in the manner as and for the purposes herein set forth.

**4.** In combination with the adjustable drag beam D and the adjustable guides *e*, the mold-boards Z, when constructed and arranged to operate substantially as specified.

**105,858. WILLIAM STACY,** Hardin County, Iowa. Machines for Ditching and Hedging. July 26, 1870.

Claim. **1.** The conveyor M, provided with flange N, cam-lever O, rack R, and pivoted board P, all constructed and arranged to operate substantially as and for the purposes herein set forth.

**2.** The arrangement of frame A B C, bottom G, cutters I I and J J, apron K, scoop L, conveyor M, and cam-lever O, substantially as herein set forth.

**105,902. SAMUEL N. CALDWELL,** Pilot Grove, assignor to himself and William Burton, Newton County, Ind. Grading and Ditching-Plows. Aug. 2, 1870.

Claim. **1.** An adjustable mold-board, composed of three separate sections, substantially as herein shown and described, and for the purpose set forth.

**2.** In combination with the land-side, the arched standard *e*, and the curved brace *m*, with its elongated point, as shown and described, and for the purposes set forth.

**105,995. ANDREW J. STEPHENS,** Miltord, Ill. Ditching-Machines. Aug. 2, 1870.

Claim. **1.** The pivoted cutter L, operated by the lever M, adjustable on the perforated bar N, to act as guide, as shown and described.

**2.** The blades Z Z, pivoted at their front ends to the fixed standards B, and at their rear ends to the standards A', which are made vertically adjustable with reference to the beam A, by means of the pivoted beams B' and perforated standards C', all as and for the purpose specified.

**3.** The arrangement, with the beam A, of the caster-wheel O, pivoted guide-cutter L, blades Z, and slide T, with their respective standards and adjusting levers, the plow C F, extension I, and bar J, as shown and described.

**106,443. STEPHEN SIDNEY WOOD,** Brooklyn, N. Y. Ditching-Plows. Aug. 16, 1870.

Claim. **1.** The branch-handle O, attached, by an adjustable band, P, to the main handle, for the purpose specified.

**2.** The combination, in a ditching-plow, of plate E and straps F with a pivoted beam, A, each constructed and relatively arranged as and for the purpose specified.

**107,393. JOHN H. MARTIN and CLINTON D. BRADSHAW,** Danville, Ill. Ditchers and Graders. Sep. 13, 1870. Claim. The arrangement, with the hinged

sides A A', wing G, and plow B, of the adjustable rotary colter D, all constructed substantially as set forth.

**108,217. HENRY VANNATTA,** Jefferson, Ill. Ditching-Machines. Oct. 11, 1870.

Claim. The combination and arrangement of the beam B, standards *a*, hinged bars *b*, windlass C and *d*, and frame A, provided with an extended front beam A', with the adjustable frame *h*, chains or rods *i*, and a plow, substantially as and for the purposes specified.

**108,238. GEORGE CLARK,** Dover, assignor to himself, Franklin B. Ives, Tiskilwa, and R. L. Dean, Dover, Ill. Road-Scrapers and Ditchers. Oct. 11, 1870.

Claim. The combination of the adjustable mold-board A, brace-rod C, and clamp *f g*, with the bar B constructed with a point *b*, and flange E, employed to guide the mold-board A, in the manner described.

**109,091. HIRAM A. WINTER,** Windsor, Ill. Ditching and Grading Machines. Nov. 8, 1870.

Claim. 1. The shear B, nose D, and plate C, combined and attached to a supporting-frame, A A', as and for the purpose described.

2. The device B C D, combined on a frame, A A', with the revolving cutters L L', as and for the purpose described.

**109,251. JOHN WESLEY ROBERTS,** Hartford City, Ind. Ditching-Machines. Nov. 15, 1870.

Claim. An improved ditching-machine, consisting of the leveler A B and its adjustable cutters C c, D d', and the plow E F, and its adjustable beam G g and adjusting-bar H, said parts being constructed and operating substantially as herein shown and described, and for the purposes set forth.

**109,567. JOHN ZOEBERLEIN,** Baltimore, Md. Carriage-Attachments for Plows. Nov. 22, 1870.

Claim. The mounted bolster K, provided with a series of holes,  $\frac{1}{2}$ ', and with the notched bar J, hook o, and the pivoted frame L  $\frac{1}{2}$   $\frac{1}{2}$ ' having holes o', said parts constituting a carriage-attachment for plows, adapted for adjustable connection with the plow-beam by means of a chain, I, substantially as and for the purpose set forth.

**113,722. ISAAC T. BAKER,** Gratiot, Ohio. Tile-Ditchers. Apr. 18, 1871.

Claim. The curved bed-plate or trough A, with the share B, adjustable beam D, and handles F, combined and arranged substantially as and for the purposes described.

**117,813. ROBERT M. PRIMMER,** Vin-ton, Iowa. Ditching-Plows. Aug. 8, 1871.

Claim. The mold-boards K K and plates Q Q, combined, constructed, and relatively arranged as and for the purpose specified.

**119,209. DAVID WHITESELL,** Mattoon, Ill. Ditching-Machines. Sep. 19, 1871.

Claim. 1. The combination of disks C to cut the sides of the ditch, the disk L to centrally incise the sod, and the horizontal bottom edges of mold-boards K K to cut the bottom, all constructed, arranged, and operating as described.

2. The movable axle-frame A D D, the lever G, links F F H, and the frame I, combined, as described, with plow-beam E, so as to raise and lower the point of the plow in the manner described.

**119,759. OSCAR F. HALE,** Irvington, Iowa. Ditching-Machines. Oct. 10, 1871.

Claim. 1. The combination of the framework A B D, platform F, mold-boards H, plow-point M, lever N, pivoted adjusting-bar O, bars G I, knives J, knives R, tank K, and pipes L with each other, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the horizontal knife S, inclined apron T, carrier U, and carrier-frame C with the knives R J, mold-boards H, and frame-work A B D, substantially as herein shown and described, and for the purpose set forth.

**120,690. HENRY D. WILLIAMS,** Fairview, Iowa. Ditching-Plows. Nov. 7, 1871.

Claim. Bottom cutter G and the two inclined side-cutters K K, combined, as described, with the single elongated mold-board L and the base l', to cut, carry, and throw all the dirt on one side of the ditch.

**123,262. JOHN KELLY and WILLIAM H. HENNIS,** Winamac, Ind. Ditching-Plows. Jan. 30, 1872.

Claim. The combination of the keel A, metallic base *a*, spear-pointed at its front end, V-shaped cutter G, share H secured under the cutter and in a slot in the spear-point, and the metal-faced wings B B, braced obliquely upward and outward, as shown, and provided with the side-cutters b b on their lower edges, all substantially as and for the purposes herein set forth.

**124,974. JORDAN W. McALISTER and JOHN C. POFFENBERGER,** Jacksonville, Ill. Ditching-Machines. Feb. 27, 1872.

Claim. 1. The combination of the plow and elevating-wheel G, said wheel being provided with buckets H, substantially as specified.

2. The combination of the guide-plate K with the elevating-wheel, substantially as specified.

3. The combination of the chute L and the elevating-wheel, substantially as specified.

4. The plow, elevating-wheel, guide, and chute, all mounted in a frame vertically ad-

justable on the truck-frame, and provided with adjusting-rollers, cords, and holding-pawls, all substantially as specified.

5. The conical flange 1, wheel G, and chute L, substantially as specified.

**133,974. LEWIS W. FISHER,** Rockville, Ind. Ditching - Machines. Dec. 17, 1872.

Claim. 1. The combination of the frame A, adjustable spade C, and spreading-beams L, substantially as specified.

2. The curved brace 1 bearing against the under side or lower end of blade and adjustable in the frame behind, as described.

**146,725. DUDLEY W. TRAVIS,** Ithaca, N. Y. Ditching - Machines. Jan. 20, 1874. Filed Oct. 10, 1873.

Claim. 1. A machine for cleaning out the furrows made by the ditching-plow, consisting of a pointed plate, a, provided with operating-handles c, substantially as set forth.

2. The pointed plate a, for cleaning out the furrows made by the ditching-plow provided with the adjustable roller 2, substantially as specified.

3. The pointed plate a, for cleaning out the furrows of ditching-plows, provided with the wings 3 and guide 7, substantially as described.

4. The pointed plate a, provided with the roller 2, wings 3, guide 7, and suitable strengthening-bars, in combination with the scraper 9, substantially as shown.

**149,337. HENRY G. RICHARDS,** Galesburg, Ill. Ditching and Tile - Laying Machines. Apr. 7, 1874. Filed Feb. 7, 1874.

The forward end of the frame rests upon two supporting-wheels, while the rear ends drags upon the ground. The plow-beam is pivoted to the rear end of the main frame, and the forward end is regulated in height by a screw. The earth is lifted upon an inclined plane, raised above the surface, giving a space for introducing the tile, which are covered by the falling earth.

Claim. The adjustable frame B, pivoted to the drag-frame A, and provided with the cutters D E E and elevator G, arranged and operating substantially as and for the purpose specified.

**150,529. JOSEPH A. CLARK,** Fairview, Pa. Ditching-Machines. May 5, 1874. Filed Feb. 24, 1874.

The chute for elevating the earth is arranged at the side of the plate, constituting the curved beam, standard, and guide-plate or land-side. The tongue is adjustable upon the front end of the beam, and carries gage-wheels.

Claim. The standard A, having the forward bent beam B and guide-bar C, and the adjustable draft-tongue M pivoted directly to said beam, and carrying the gage-wheel or wheels N, when all are arranged and combined with the chute G, located at the side of the

beam, substantially as described, for the object specified.

**152,436. WILLIAM B. TICHENOR,** Tipton, Ind. Ditching - Plows. June 23, 1874. Filed May 8, 1874.

The mole has a flat and broad bearing-surface, and from the point curves outward and upward to convey the earth to the elevating mold-board. Side colters cut vertically the edges of the ditch, and a middle one divides the center.

Claim. The mold-board E, constructed as described, in combination with cutters H H G and gage-rod O, as and for the purpose herein set forth.

**155,184. F. L. DELFER,** Burlington, Iowa. Ditching-Machines. Sep. 22, 1874.

Filed Aug. 24, 1874.

Claim. 1. In combination with the side and bottom cutters of a ditching-machine, an advance or preliminary furrow-cutter, A, provided with an angular or gouge-shaped cutter, B, substantially for the purposes set forth.

2. The advance or preliminary furrow-cutter A, provided with an angular or gouge-shaped cutter B, and its own side-discharge slide C, as set forth.

3. In combination with the angular cutter B, the central colter D, as set forth.

4. In combination with the cutter H, of a ditching-machine and the advance furrow-cutter A, substantially as set forth, the guide-slide e, as described.

5. In combination with the side cutters G, fixed upon the axle F, a chain or cord L, wound upon said axle, and one end of said chain or cord attached to some stationary object, to cause said cutters to rotate as the machine advances.

6. In combination with the discharge-slide of a ditching-machine, a water tank and pipe, to discharge water into said slide for a lubricant, as set forth.

**155,309. WILLIAM B. HYDE,** Oakland, Cal. Ditching and Embanking Machines. Sep. 22, 1874. Filed Aug. 26, 1874.

Claim. 1. A ditching and embanking machine composed of one or more timbers, A, arranged to move diagonally to the proposed line of embankment, and having two or more plows, C F G, each of said plows being provided with a scraper, E E' E'', substantially as and for the purpose above described.

2. In combination with the plows C F G of a ditching-machine, the wings or scrapers E E' E'', arranged to convey the earth turned by each plow successively to the outside of the ditch, and deposit it in a line to form an embankment, substantially as above described.

**156,139. JAMES DAVIES, MAZO MANIE, and CHARLES C. SKINNER,** Eau Claire, Wis. Ditching-Plows. Oct. 20, 1874. Filed Aug. 11, 1874.

Besides the cutters and elevating-scoop, the frame is provided with a guide-board pivoted in its center to turn the earth upon either bank.

Claim. In a ditching-machine, the combination of the frame A, cutters F D, and scoop G, with a guide-board, H, pivoted to throw the earth in either direction, substantially as described.

**161,509. A. L. HARNED,** Boston, Ky. Ditching-Plows. Mar. 30, 1875. Filed Mar. 8, 1875.

A ditching-plow having a long share or neck and a cutter projecting upward from the heel of the share.

Claim. The share D, having an elongated neck, D', and mold-board E, in combination with a fixed cutter, F, and revolving adjustable cutter G, all constructed and arranged substantially as and for the purpose specified.

**175,275. F. L. DELFER,** Burlington, Iowa. Ditching-Machines. Mar. 28, 1876. Filed Feb. 19, 1876.

Claim. 1. The cutters and chute of a ditching-machine, combined with a mud-box, J, near the forward or lower end of said chute, to catch and retain the mud and sediment.

2. The mud-box J constructed with its rear end open and accessible, for the removal of the mud and sediment therefrom while the machine is in motion.

3. The chute of a ditching-machine and the mud-box J attached thereto, in combination with the roller K, to take up water from said box, and deliver it to the moving earth upon the chute to lubricate the same.

4. A ditching-machine chute, provided with a surfacing layer of some substance, to which earth will but slightly adhere, such as plaster-of-paris, substantially as set forth.

5. A ditching-machine chute, provided with numerous water-channels g, combined with a surface-layer, I, of plaster-of-paris, and a water tank, H, as set forth.

**182,986. MATTHEW J. AUSTIN,** Bonham, Tex. Ditching-Machines. Oct. 10, 1876. Filed May 5, 1876.

Claim. 1. The vertically-sliding interior frame, moving in ways in the exterior frame, and operated by means of the crank-turning toothed pinions engaging with a rack, and controlled by a pawl and ratchet, as described.

2. In combination with the interior frame, constructed as described, the T-shaped colter G, the widener H, the flanged wheel A, the scraper D, shed D', and fender R, all constructed, arranged, and operating substantially as described.

**186,160. A. PETERSON,** La Fayette, Ind. Ditching - Machines. Jan. 9, 1877. Filed June 30, 1876.

Claim. 1. The adjustable inclined plane B, furnished with side cutters B'' that increase in width from point to heel, arranged and oper-

ating substantially as and for the purpose set forth.

2. The vertical cutter-bar C, having a collar, c, on its upper end, in combination with the hinged inclined plow B, the adjusting-screw D, pivoted in the guide-piece a, and the frame A, arranged to operate substantially as and for the purpose set forth.

3. In combination with the adjustable inclined plane B, with the side cutters B'' and the frame A, as described, the rotating disk-cutters E, arranged as and for the purpose set forth.

4. In combination with the frame A and adjustable inclined plane B the reversible trucks E, arranged and operating substantially as and for the purpose set forth.

**187,400. D. N. MAXWELL,** Ames, Iowa, assignor of one-half his right to G. W. Jones, same place. Ditching - Plows. Feb. 13, 1877. Filed July 17, 1876.

A combination which adds supporting-rollers and laterally-adjusting draft to the ditching-plow and its carrying-sled.

Claim. In combination with the ditching-frame A B, carrying the plow, the adjustable sled-frame J, provided with the rollers d d, the standards K, rocking bar L, lever M, perforated boards A, pin s, and laterally-adjustable draft-rod N, all constructed and arranged substantially as and for the purposes herein set forth.

**187,466. JAMES W. HUMPHREYS,** La Fayette, Ind. Ditching-Machines. Feb. 20, 1877. Filed Aug. 16, 1876.

Slotted beam-plate and cross-bar, and loose couplings, to provide various adjustments of the loosely-pivoted wings of the concave blades.

Claim. The ditcher-beam A, provided with the slotted plate c, the cross-piece G, provided with bolts and nuts, and connecting with the wings H by rods g, as shown, for the purposes set forth.

**189,647. W. R. PEET,** Viola, Iowa. Ditchers. Apr. 17, 1877. Filed Jan. 29, 1877.

Claim. In a ditcher, the combination, with frame A B, share C, side cutters G G, and rest D', having extension D, of the turning-board E, inclined laterally as well as longitudinally, extending above the frame A B, and provided with channels e', as and for the purpose specified.

**191,880. AUGUST PIRCH,** Denver, Colo. Combined Ditching, Gang, and Shovel Plows. June 12, 1877. Filed May 21, 1877.

Claim. 1. In a sulky-plow adapted for ditching purposes, the combination and arrangement, with the frame A, of the plows D, each plow being separately adjustable, the adjustable scrapers E, and the levers L O, for raising the plows, substantially as described.

2. In combination with the frame A, the

cross-rods R R, arranged to support the rear plows and their fitting levers, and adjust the same laterally thereon, so that by a removal of the front and rear plows on one side the remaining rear plow can be shifted, so as to adapt the machine for a gang-plow.

**194,865. SETH FURNAS,** Bridgeport, Ind. Ditching-Plows. Sep. 4, 1877. Filed July 18, 1877.

Claim. 1. A ditching-plow consisting of the combination of a beam, C, the brace-bars D D, the handles G, and the inclined scoop and trough A B, bolted to the said brace-bars and rear end of the beam, and arranged to support the handles at its extremity, substantially as and for the purpose described.

2. The combination, with the rear extension of the trough B, and the handles G having keepers H, of the cross-bar E having guide-bars F, and the set-screws f, substantially as and for the purpose described.

**202,416. OWEN T. DAVIES,** Brighton, Cal. Ditchers and Cultivators Combined. Apr. 16, 1878. Filed Dec. 26, 1877.

Claim. 1. A ditching-machine consisting of a round-bottomed body, widened toward its rear end, and having at its front end a right and left handed mold-board, and provided with handles, substantially as specified.

2. The body A, having its bottom rounded and its rear end flared, and provided with right and left handed mold-boards at its front end, as described, combined with laterally-extensible weed-knives, substantially in the manner and for the purposes specified.

3. The body A, provided with a rounded bottom and flaring rear end, as described, combined with front right and left handed mold-boards and rear adjustable plow-beams and blades, substantially as herein set forth.

4. In a ditching-machine, a round bottomed body having a widened or flaring rear end, and carrying plow-beams and blades, as described, the upward inclined part h, whereby the blades, when the front end of the implement is raised in being drawn, are allowed to sink into the earth.

5. A compound implement consisting of a round-bottomed body having a widened or flaring rear end, a right and left handed mold-board at the front end, a pair of extensible weed-cutting knives, a pair of adjustable plow-beams and blades, and suitable handles, combined substantially as and for the purposes specified.

**203,042. HUGH W. HILL,** Decatur, Ill. Machines for Opening Ditches. Apr. 30, 1878. Filed Mar. 25, 1878.

Short teeth upon the sides and bottom of a boat-shaped drag remove grass, weeds, &c., in the ditch. A rod or bail permits the draft-chain to slip from end to end interchangeably.

Claim. 1. The boat-shaped machine A, provided with the teeth a a, substantially as described, and for the purpose set forth.

2. The rod B and ring b, in combination with the boat-shaped machine A, chains c c, and spreading-rod C, substantially as described, and for the purpose set forth.

3. The combination of the boat-shaped machine A, teeth a a, rod B, ring b, and runners D D, substantially as described, and for the purpose set forth.

**205,325. ALEXANDER WILEY,** Bluff Point, Ind. Ditching-Plows. June 25, 1878. Filed Nov. 20, 1877.

A heavy wooden beam is supported upon two pairs of wheels. Between the forward and hind wheels the colter and standard are inserted. The foot or point is secured to the lower end of the standard, and to this the mole is attached by a bolt that passes through it and secured by a nut. A brace extends from the heel of the point to the rear end of the beam.

Claim. In combination with the colter, share, and male, the brace G, attached by a bolt, which also serves to secure the hind axle to the beam, substantially as set forth.

**707,993. ITHAMER W. STUART, and JAMES G. ALLEN,** Holliday Station, Ill., assignors to said James G. Allen. Ditching-Plows. Sep. 10, 1878. Filed July 29, 1878.

Claim. 1. The cutting-edges b b, formed on the side beams A A, in combination with the curved cutters G G, substantially as and for the purpose set forth.

2. The crank a and pitman I, provided at its rear end with shovel H and cross-bar d, in combination with the vertical grooves h h and horizontal grooves h' h', the shovel being arranged to operate substantially as and for the purposes herein set forth.

3. In a ditching-plow, the combination of side beams A A, constructed to form cutting-edges b b, curved cutters G G, wheels C C, crank a, pitman I, and shovel H, all constructed and arranged to operate substantially as described.

4. The combination of the side beams A A, having grooves h h' h'', the plow F, wheels C C, with crank a, shovel H, with handle I and pins e e, and the springs i i, all constructed substantially as and for the purposes herein set forth.

5. The swinging-valve L, in combination with the plow F, shovel H, and frame, with side chutes K K, substantially as and for the purposes herein set forth.

**208,682. JAS. W. HUMPHREYS,** Otterbein, Ind. Ditching-Machines. Oct. 8, 1878. Filed June 11, 1878.

Claim. In a surface-ditching machine, the hinged adjustable sole K, in combination with the adjusting-screw O and the adjustable shoe R, constructed and operating substantially as and for the purposes set forth.

**214,399. ISAAC KARSNER,** Florida, Ohio. Road-Ditchers. Apr. 15, 1879. Filed Oct. 7, 1878.

Claim. 1. The combination of the bar A, having its forward end beveled, its bottom face slightly rounded, and faced with metal plates B upon its lower and outer faces and its beveled forward end, the wing C', faced upon its outer side with a metal plate, D, having its lower edge bent outward, the upright frame E, the handles F, the adjustable beam G, the cutter J, and the shear K, with each other, substantially as herein shown and described.

2. The wedge-shaped and slotted block H, inserted between the beam G and the forward end of the bar A, and held in place by the fastening bolt g<sup>2</sup>, substantially as herein shown and described.

**216,162. CHARLES D. EDWARDS,** Albert Lea, Minn. Ditching-Machines.

June 3, 1879. Filed Feb. 11, 1879.

Claim. 1. In a ditcher, the combination of a reversible mold-board, J, with a guide made in two parts, the part i being rigidly fastened to the floor, while the other part, Z, is adjustable back and forth, substantially as shown.

2. In a ditcher, the frame A, provided with the guides z, for the axle to move vertically in wheels q, and a guide, s, to regulate the depth of the furrow or ditch, substantially as set forth.

3. The combination, in a ditcher, of the two falling boards, s, with the stop t placed between them, substantially as described.

**219,778. WILLIAM STACY,** Cottage, Iowa. Ditchers. Sep. 16, 1879. Filed July 22, 1879.

Claim. In a ditching-machine, the frame composed of main beam A, short beams A' A', beams A' connected by bar a, cross-bar B, shoe D, post C, mold-board E, and platform G, substantially as and for the purpose set forth.

**225,579. CHARLES D. EDWARDS,** Albert Lea, Minn. Ditching-Machines.

Mar. 16, 1880. Filed Jan. 26, 1880.

Claim. 1. The rear frame, L, having thereon the movable blocks L', in combination with the beams A and the cross-piece C, to prevent the rear support of the mold-boards G and guide H from falling on the rear frame, L, when in operation, substantially as herein set forth.

2. The iron guides J, attached to the rear end of floor A', having at each of their ends screws J', passing through nuts J'', in combination with the brace H'', operating between said nuts J'' and the rear end of guide H, whereby said guide may be adjusted at any desired angle, substantially as and for the purpose herein set forth.

**225,657. WILLIAM STACY,** Cottage, Iowa. Ditching-Machines. Mar. 16, 1880. Filed Aug. 19, 1878.

Claim. 1. The clevis D, provided with a pinion, C, mounted between the ends of the clevis, and working on a rack-bar attached to the cross-bar B of the frame, as and for the purposes set forth.

2. Attachment H H, with the circle-knife, constructed and arranged to operate substantially as and for the purposes herein set forth.

3. The combination of the point T, mold-board L, and water-conductor S, having the opening x' and valve x, substantially as and for the purposes herein set forth.

**227,651. JAMES A. RAILEY,** New Orleans, La. Ditching-Machines. May 18, 1880. Filed Sep. 11, 1879.

Claim. 1. In a ditching-machine, the combination of a central cutting-standard, F, horizontal knives g, and conduit H, with cutter-edges, substantially as set forth.

2. In combination with the conduit H of a ditching machine, the hinged or pivoted apron I and operating-lever k, substantially as described.

3. A ditching-machine consisting, essentially, of the advance colter D, with openers e, the plow-standard F, having horizontal side knives, g g', and conduit H, substantially as described.

**231,598. JOHN C. McCLURKIN,** Morning Sun, Iowa. Ditching-Plows. Aug. 24, 1880. Filed Jan. 30, 1879.

Claim. 1. In a ditching-machine mounted upon a wheel-frame, the combination of the following instrumentalities, viz: the adjustably dirt cutting and elevating plow, the crank axle or yoke E, having the rocking saddle or plate G' and operated by the lever E', and the arch A, carrying the vertically-adjustable wheel-spindle C, whereby the plow may be adjusted to cut at the surface or at the bottom of a ditch at its successive passages, substantially as shown and described.

2. The scoop J and side cutters, K, adjustable by rod M, in combination with a mold-board, P, adjustable vertically by means of the perforated plate N and movable standard H, substantially as and for the purposes set forth.

3. The plate L, constructed as described, and arranged to operate with the side cutters, K, to adjust their lateral inclination, substantially as and for the purpose specified.

4. Scoop-cutter J, provided with side cutters, K, in combination with a plate, L, constructed substantially as set forth.

5. The adjusting-rod M, connecting-plate L, and cutters K, in combination with the standard H, adjustable on the beam G by a series of holes, for adjusting the machine to cut deeper or shallower ditches, substantially as described.

6. The latch I, in combination with beam G, pin h'', and standard H, substantially as and for the purpose specified.

7. Spring plate Q, plate N, and mold-board

P, in combination with the scoop-cutter J, provided with side-cutters, K substantially as and for the purpose set forth.

**240,127. ALFONZO HASKINS,** Davisville, Cal. Ditching-Plows. Apr. 12, 1881. Filed Feb. 4, 1881.

Claim. In a ditching-plow, the standard F and shoe G, in combination with the diagonal bar I, pivoted to the standard, and bearing the cutting-point H and the shares J J, all constructed, arranged, and operated as set forth.

**241,520. JAMES R. VINNEDGE,** La Paz, Ind. Ditching-Machines. May 17, 1881. Filed Jan. 27, 1881.

The ditching-plow has front and rear adjustable rollers attached to the frame and one oblique side cutter. An oblique board is attached to the frame to run against the oblique wall of the ditch to widen it by cutting on the opposite side.

Claim. In a ditching-machine, the combination, with the plow A, of the supplemental land-side or crowd-board B, having the board B', with oblique arms d' d', and arms d d<sup>2</sup>, substantially as and for the purpose set forth.

**242,159. VETLE SALVESEN,** Molland, Minn. Ditching-Plows. May 31, 1881. Filed Mar. 28, 1881.

Claim. 1. In a ditching-machine, the cutter or share A, formed of one piece of square, oblong, or diamond-shaped plate of sheet metal, bent up by two of its diagonally-opposite corners into a semicircular or other suitable shape to conform to the ditch it is designed to cut, in combination with the sharp-edged central plate, B, and beam C, substantially as set forth.

2. The combination and arrangement of the semicircular share A, central plate B, and wings E' E<sup>2</sup>, substantially as set forth.

3. The frame G' G<sup>2</sup>, provided with guides e<sup>2</sup>, in combination with frame H', adapted to run up and down in guides e' e<sup>2</sup>, screw I, beam C, and cutter A, substantially as set forth.

**242,450. JOSEPH L. HOUSE,** Winnipeg, Manitoba, Canada. Ditching-Plows. June 7, 1881. Filed Feb. 28, 1881.

Claim. 1. In ditching-plows, &c., a mold-board a portion of which is composed of hinged sections adapted to be thrown outward to remove the earth when the plow becomes clogged, substantially as set forth.

2. The combination and arrangement of the share C, hinged sections G' G<sup>2</sup> G<sup>3</sup> G<sup>4</sup> G<sup>5</sup>, and hinged cutters e, substantially as set forth.

3. The combination and arrangement of the share C, movable sections G' G<sup>2</sup> G<sup>3</sup> G<sup>4</sup> G<sup>5</sup>, and curved plate F, substantially as set forth.

4. The combination, with the mold-board, of an endless belt, I, having the buckets e and adapted to be revolved, whereby a stream of water may be kept flowing upon the mold-board, substantially as set forth.

5. The frame A, carrying the plow, and a

wheeled truck located in front thereof, in combination with cable M, connecting the frame and truck, and a pivoted lever, P', connected at one end by an adjustable fastening to the frame A and at the other end by a like fastening to the tongue of the truck, whereby the parts will operate as set forth.

6. The frame A, having the wheels H<sup>2</sup> H<sup>3</sup>, journaled above its rear end, in combination with a wheeled truck connected with frame A, and adapted, when said frame is reversed, to fit under the forward part of the frame and form, in connection with wheels H<sup>2</sup> H<sup>3</sup>, a wheeled support for the frame, substantially as set forth.

**258,064. FRANK A. HILL,** Benicia, and **MOSES J. CHURCH,** Fresno, Cal. Ditching and Grading Plows. May 16, 1882. Filed Jan. 14, 1882.

Plow beam suspended from a crank by which the plow is lifted at the front. At the rear a truck-wheel upon a lever is adapted to be let down as a carrier. An extension mold-board adjustable laterally and lifted by a lever. Its fulcrum-beam is pivoted to swing with the mold-board to or from the landside.

Claim. 1. In a ditching-plow, the combination of the carrying-wheels, the rock-shaft V, the plow having a permanent mold-board, the pivoted extension A, having independent vertical and lateral adjustment, and the lever K, pivoted to the rock-shaft and connected to the extension of the mold-board.

2. The combination, with the mold-board, of the extension A, pivoted at R, and having the pin and slot G, the support K, and the rack and lever J I.

**262,229. JOSEPH L. HOUSE,** Hutchinson, Minn. Ditching-Plows. Aug. 8, 1882. Filed Mar. 17, 1882.

Claim. 1. In a ditching-plow, the combination of curved plate C, share B, connected to said plate, mold-board E, hinged to share B, and adjustable wing D, connected to curved plate C, substantially as and for the purpose set forth.

2. The combination of curved plate C, adjustable wing D, hinged thereto, ratchet-bar e, for adjusting the wing, and lever G, for operating the bar, substantially as set forth.

3. The combination, with ditching-plow, of a frame, R', hinged thereto, a shaft, R<sup>2</sup>, provided with wheels R<sup>3</sup> and journaled in the frame, and a bucket-wheel, R<sup>5</sup>, connected to shaft R<sup>2</sup> and revolved thereby, and having its lower edge below the sides of the ditch, substantially as and for the purpose specified.

4. The combination, with the ditching-plow of a shoe, M, connected to the forward part of the plow, standard L', connected to shoe M, lever N, pivoted to standard L', for raising and lowering said standard, and notched standards P' P<sup>2</sup>, for lever N, to engage with, the several parts being arranged to operate as set forth.

**265,102. GEORGE O. KIRKPATRICK  
and ABRAHAM KIRKPATRICK,**  
Bridgeport, Cal. Ditching-Plows. Sep.  
26, 1882. Filed June 6, 1882.

Claim. 1. In a ditching-plow, in combination with beam A, the U-shaped blade or share F, bolted to the beam, the underlying point or nose G, bolted to the share F, and the elongated mold-board H, bolted to the inclined rear portion of the nose G, behind the share, substantially as and for the purpose herein described.

2. In a ditching-plow, the U-shaped share or blade F, bolted to the plow-beam, the nose or point G, bolted to the share F, and having an inclined rear portion, and the elongated mold-board H, secured upon the nose G behind the blade F and rendered adjustable by the bolt e, and thimble b, substantially as and for the purpose herein described.

3. A ditching-plow consisting of the beam A, handles B, the brackets or loops E E, U-shaped blade or share F, point or nose G, and mold-board H, all arranged and constructed substantially as herein described.







• ENDERS

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## FENDERS.

**25,432. EDMUND MILLER and BENJAMIN MILLER,** Rising Sun, Ind. Cultivators. Sep. 13, 1859.

Claim. The combination and arrangement of the guard H, elevated wing I, curved horizontally in two directions, adjusting shank G and bracket E F, operating in connection with a shovel plough, in the manner and for the purpose set forth.

**26,718. J. V. TAYLOR,** Dixon, Ill. Plows. Jan. 3, 1860.

This invention relates to a shield attachment for plow, so applied and arranged as to protect young growing plants, preventing them from being injured by the plow and the earth cast up during the process of cultivation.

Claim. The combination with a cultivator plough of a shield E, when said shield in its transverse section presents a cima reversa or wave shape, and is perforated and suspended at the side of the cultivator by means of springs a H, and an adjustable clip G, substantially as and for the purpose set forth.

**27,808. WILLIAM D. IVEY,** Milford, Ga. Plows. Apr. 10, 1860.

This plow can be adjusted so as to cut deep or shallow, by screwing up, or unscrewing the nut f, which fits on the adjusting piece F.

Claim. The combination and arrangement of the guard blade I, the wheel G, the plow D, frame E, and draft beam A, substantially as set forth.

**29,147. THOMAS H. DODGE,** Washington, D. C. Cultivators. July 17, 1860.

Claim. 1. In combination with a plow or cultivator, the self-adjusting rotary shield F, arranged to protect the young plants, as described, and as shown in Fig. 1.

2. in combination with the plow or cultivator, the self-adjusting guard colter H and rotary shield F, as and for the purposes set forth.

**29,196. MARK RIGILL and W. D. IVEY,** Dawson, Ga. Cotton Cultivators. July 17, 1860.

A guard wheel is attached to a brace or plate on a fulcrum, the brace or plate, being pivoted at the end while its other end is perforated with the holes whereby it can be adjusted to set the wheel up or down, by means of the bolt which passes through the beam, and one of the holes in the plate.

Claim. The arrangement of the guard wheel G, plate H, adjusting rod F, with the beam A and standard E, as and for the purposes set forth.

**29,368. EZRA EMMERT,** Franklin Grove, Ill. Cultivators. July 31, 1860.

This invention consists in the combination, with an ordinary shovel plough or cultivator, of a wheel, rotating on the side of the plow, and provided with hoes on its edge, for the purpose of preventing the plough from covering the growing plants as it is drawn forward, and also for the purpose of giving steadiness to the plough and enabling the attendant to guide it more readily, and, at the same time, for the purpose of digging up and pulverizing the soil around the roots of the growing plants.

Claim. The combination, with an ordinary shovel plow or cultivator A, of the rotary wheel F, furnished with hoes b, and operating in the manner and for the purpose specified.

**29,391. W. C. LOSTUTTER and S. WOLCOTT,** Rising Sun, Ind. Cultivators. July 31, 1860.

The side of the beam is pivoted to an arm which passes through a laterally adjustable stirrup, and projects down at right angles, and is secured to a guard plate, from the rear of the plate proceeds back a vertically adjustable wing, which may be raised or depressed, according to the depth it is desired to plow, and set in its adjusted position by a nut.

Claim. The arrangement of the adjustable clamp G<sup>1</sup>, swinging arm G, guard K, wing L, beam A, brace rod E, standard B, pivoted handle D D, cross brace D<sup>1</sup>, sector plate a, and strap b, as and for the purpose shown and described.

**31,109. JOSHUA F. CAMERON,** Bedford, Mo. Shields for Plows. Jan. 15, 1861.

This invention consists in placing over the mold-board a revolving disk or shield arranged so as to be adjustable in height and in distance from the mold-board, thus causing the dirt to fall upon the roots or base of the plant instead of covering them.

Claim. The arrangement of the revolving shield B, adjustable head a, bars C J and D, constructed and adjustable in relation to each other in the manner described for the purpose specified.

**32,966. JOHN DEMENT,** Dixon, Ill. Attaching Shields to Plows. July 30, 1861.

The shield consists of a curved piece of metal rounded off at the rear and front edges. It is secured at its front end to the forward portion of the plow-beam by means of a curved bar, to which it is hinged; the rear of the shield is connected to the shank of the plow-blade by means of a rod, which allows the rear of the shield to rise and fall in passing over uneven ground.

Claim. The arrangement of the shield A,

the bar B, wedge c, and hinge K, with the attachment E and shank to which the plow-blade is attached, in the manner and for the purpose specified.

**39,333. PHILo BARBER,** Lostant, La Salle county, Ill. Plant Fenders. July 28, 1863.

Claim. 1. A fender-guard, consisting of longitudinal rods and sliding transverse rods, put together in such a manner as to form a sieve, the meshes of which are capable of being extended or contracted, substantially as and for the purposes herein described.

2. In combination with a flexible fender constructed substantially as described, the extension rod c, or its equivalent, substantially as described.

3. A fender or plant shield constructed of longitudinal and transverse wire rods looped together and twisted so as to constitute an open sieve-like frame, substantially as described, whether the meshes of the fender are variable or invariable in size.

**46,616. RUEL ALDEN,** East Toledo, Ohio. Protecting Trees from Injury while Plowing. Mar. 7, 1865.

Claim. The employment or use of India-rubber or other elastic substance in the form of rollers or otherwise, applied to one or both ends of a whiffletree, to serve as a cushion or guard to protect, while plowing, trees from the action of the whiffletrees, substantially as set forth.

**57,747. THOS. B. McCONAUGHEY,** Newark, Del. Guards for Cultivators. Sep. 4, 1866. Antedated Aug. 28, 1866.

Claim. 1. The application of a guard or guards to a cultivator, substantially in the manner as and for the purpose herein set forth.

2. The pivoting bar F to which the plate or guard G is attached between plates E E secured to the cultivator near its front end and provided with a rest h, substantially as described.

**59,191. JOHN C. DOUGHERTY,** Bridgeport, Ky. Shovel Plows. Oct. 30, 1866.

The vertically adjustable fender is attached to the beam to protect small plants from clods.

Claim. Each and every part of the fender described as above.

**59,515. JOHN N. POND,** Wakefield, Va., assignor to A. W. Holt and J. L. White, same place. Plows. Nov. 6, 1866.

Claim. The rectangular cutter A, when arranged, combined and operated by adjustable levers B and C, to be attached to any ordinary plow, as herein described and for the purposes set forth.

**63,134. WILLIAM J. M. BATCHEL-  
DER,** Dayton, Ohio. Shovel-Plow Guards. Mar. 26, 1867.

The guard is attached to the post of the

shovel plow for raising the lower leaves of tobacco out of the way of the shovel.

Claim. The shovel-plow guard E, when constructed substantially as herein described and for the purpose specified.

**63,140. ROBERT COOK,** Franklin, Ohio. Fenders for Corn Plows. Mar. 26, 1867.

Claim. 1. The yielding and adjustable fender D, attached to a plow beam by mechanism, substantially as and for the purpose specified.

2. The construction of the disks C and C' for holding the fender D, operating substantially as and for the purpose described.

3. The combination of the fender D, disks C and C', with the beam plate A and spring B, arranged substantially as and for the purpose described.

**64,707. JACOB REEDY,** Toledo, Iowa. Plows. May 14, 1867.

Claim. 1. The guard C, adjustably attached to the beam or standard of a shovel plow, so as to operate substantially in the manner and for the purpose set forth.

2. The pulverizer F, adjustably attached to the standards or beam, so as to operate in rear of the shovels of the plow, substantially in the manner and for the purpose set forth.

**69,352. JOHN LOWE,** Lebanon, Ind. Clod Fenders. Oct. 1, 1867.

Claim. The device herein described, when the same is constructed in its said several parts in manner and form as aforesaid, and used for the purpose and in the manner and form substantially as set forth.

**71,691. G. BRAIN,** Springfield, Ohio. Guard Attachments. Dec. 3, 1867.

Claim. The screen A, in combination with the adjustable hinged plate B applied to a cultivator plow, to operate in the manner substantially as and for the purpose set forth.

**73,158. WILLIAM BENNETT,** Rushville, Ind. Attachments for Plows. Jan. 7, 1868.

Claim. 1. The vertically adjustable fender H attached to the bar E, sliding in the guide F, when such bar is attached to the spring J, whose forward end is secured to the beam A in such a manner that the fender shall yield to a clod of earth, and be thrown into the proper position by the spring J, after passing such clod, as herein shown and described, for the purpose specified.

2. The spring J, when secured to the sliding bar E, bearing the pendent arm G and fender H, for the purpose of allowing a yielding movement to the fender when brought in contact with clods of earth, as herein shown and described.

**78,100. MICHAEL KIRKHAM,** Em-  
inence Post Office, Ind. Plow Shields. May 19, 1868.

This device is designed to prevent clods (in plowing young corn) from falling upon the plants, and at the same time to deposit the loose soil around the roots.

Claim. The above described shield, when made of rigid vertical bars, having both their lower and upper ends united by rigid horizontal bars, substantially as set forth.

**78,186. CHARLES A. COGSWELL,** Maquoketa, Iowa. Cultivators. May 26, 1868. Antedated May 12, 1868.

The rod has free vertical play in the eye which attaches it to the plow beam, and in hilling up potatoes and other crops, the rod raises the stems and leaves of the plants to prevent them from being covered.

Claim. The attachment of the curved rod A to the standard and beam of the ordinary shovel plow or cultivator, in the manner and for the purpose above specified.

**78,799. GEORGE GARRETT,** Elkhart City, Ill. Cultivators. June 9, 1868.

The fender shields the young plants from clods thrown toward them by the shovels. The brace beams allow the shovels to pass obstructions without injury.

Claim. Providing a double cultivator with a fender F, having bearing chains f f, when the same are united and combined with the beams B and C C, and the whole is so constructed and arranged as to operate substantially as described and for the purpose specified.

**79,133. ALEXANDER KIRKPATRICK,** Newark, N. J. Shielding Plants from Hoes. June 23, 1868.

The lower edge of the shield may be serrated for crusty earth, and plain for sandy ground. The handles project below the shield, steadyng and supporting the same when forced into the ground alongside of the row of plants.

Claim. The shield, single or double, for protecting plants from injury by the hoe, constructed in the manner and for the purposes specified.

**81,173. AARON JENNINGS,** West Cairo, Ohio. Shovel Plows. Aug. 18, 1868.

The device operates to uproot and cover weeds and grass close to the cultivated plants, provision being made to prevent the clods from falling upon the plants.

Claim. The plow, provided with the side projection a, and with the upright guard b, on which the fingers c are secured substantially as herein shown and described.

**83,259. WILLIAM CUSTER,** Shannondale, Ind. Cultivators. Oct. 20, 1868.

Three or more fingers joined at one end to a long crooked bar, fastened to the plow beam by a bolt, nut, screw, and head, form a shield to catch clods or stones thrown out by the plow, and prevent them from falling on the plants.

Claim. A shield or fender attachment to a plow, constructed and operating substantially as herein specified, and for the purposes mentioned.

**83,999. SAMUEL J. REED,** Middletown, Ohio. Plow Fenders. Nov. 10, 1868.

Designed to form a receptacle for the earth and clods thrown up by the share, and is slotted to allow the pulverized earth to pass through.

Claim. The curved fender e g, in combination with lever f, constructed, arranged, and connected with a plow, in the manner and for the purpose substantially as described.

**85,118. SAMUEL J. MILLER and LUNA WRIGHT,** Economy, Ind. Corn Plows. Dec. 22, 1868.

The rod which holds the fender passes through a slotted upright attached to a slotted bar, by which the fender is adjusted toward or from the plow, and is raised by a lever under control of the operator.

Claim. The fender, with the rod b, lever d, slotted bar i, and slotted standard t, in combination with a corn plow, substantially as set forth.

**85,601. JAMES W. MONICAL,** Mooresville, Ind., assignor to himself and Adam Howe. Plow-Attachments. Jan. 5, 1869.

Claim. 1. The adjustable shield D, as constructed with slots a a, and curved end D', in combination with slides C C and B B, substantially in the manner and for the purpose as described.

2. The rods e e, in combination with the shield D, substantially as and for the purpose described.

**86,521. JOHN FOX,** Homer, Ind. Shields for Corn in Plowing. Feb. 2, 1869.

Claim. The bar B, set-screw C, screw-shaft D, plate E, nuts a a, and rod F, used with the beam A, substantially as and for the purpose set forth.

**89,470. JOSEPH C. CURRYER and WILLIAM F. CURRYER,** Thorntown, Ind. Clod-Fenders. Apr. 27, 1869.

Claim. The devices herein described and shown, for attaching a clod-fender to a plow-beam, consisting of the staples c, wedges s, bolt u, rods v, with the tube or hook, as described, when constructed, arranged, and operating substantially as herein specified.

**90,376. WILLIS E. MOORE,** Crawfordsville, Ind. Fenders for Cultivator-Plows. May 25, 1869.

Claim. 1. A guard or clod-fender for cultivators, composed of tines b b', formed and pivoted to head E and bar F, substantially as described.

2. A jointed fender, attached to arm a by means of a pivot-joint, and provided with a stop, c, substantially as described.

**91,777. G. SEEGER, J. W. LOVELESS and J. W. THROP,** Clark's Hill, Ind.  
Plow Fenders. June 22, 1869.  
Claim. 1. The frame A, with cross-bars  $\alpha$ , and lugs  $\alpha'$   $\alpha''$ , forming the fender, substantially as shown, and described.

2. The combination of the frame A, bar B, with arms  $\theta^1$  and  $\theta^2$ , and clip C, substantially as and for the purposes set forth.

**92,318. REUBEN A. KELLY,** Hope, Ind. Clod-Fenders for Plows. July 6, 1869.

Claim. 1. A combination of a runner, plow-beam, clamp, and spring, arranged to hold the runner upon the ground with a yielding force, substantially as specified.

2. A combination of a clod-feeder, runner, clod-discharging wing, and reinforcing springs, when adjustably connected together, substantially as specified.

**92,772. JOHN AHEARN,** Baltimore, Md. Plant-Protector Attachments to Plows. July 20, 1869.

Claim. 1. As an article of manufacture, an independent plant-guard, A, connected to a socket, B, which can be fastened upon the edge of a plow mold-board, substantially as and for the purpose described.

2. The combination of the parts A B, s,  $\beta$ , C, c, constructed to operate in connection with each other, substantially in the manner and for the purposes specified.

3. In a device having a guard-plate, A, and a socket, B, for the purposes referred to, making the guard-plate adjustable toward and from the mold-board, substantially as and for the purposes specified.

**92,852. JAMES W. LOVELESS,** Clark's Hill, Ind. Clod-Fenders. July 20, 1869.

Claim. 1. The clip C, substantially as shown and described.

2. The combination and arrangement of the fender A, forked bar B, and clip C, with reference to a plow, substantially as shown and described.

**93,362. HUGH B. SPEDDEN,** Baltimore, Md., assignor to himself, William H. Baltzel, and G. A. Moore, same place. Plow-Gauges. Aug. 3, 1869.

Claim. The slotted plate G, connected with the plow-beam by the rods C C, and adjusted horizontally and vertically by the nuts  $n$   $n'$ , in the manner and for the purpose described.

**93,997. GREGORY JENNINGS,** West Cario, Ohio. Shovel-Plows. Aug. 24, 1869.

Claim. 1. The bent or curved arm E, having guard-fingers G attached to its lower part and adjustably connected with the beam A, substantially as herein shown and described, whether used with or without the draught-rod H, as and for the purpose set forth.

2. The combination of the recessed shovel

D with the curved arm E, both constructed and operating together as set forth.

**94,268. DANIEL APPLEGATE,** Noblesville, Ind. Clod-Fenders. Aug. 31, 1869.

Claim. The arrangement upon the side of a plow or cultivator beam, A, of the slotted plate plate B and curved rods C C, all constructed substantially as specified.

**94,383. JAMES C. BELL,** Lebanon, Ind. Plows. Aug. 31, 1869.

Claim. The combination and arrangement of clod-fender E, bar  $\beta$ , clip m, beam A, and fulcrum-rod f, substantially as and for the purpose specified.

**94,684. JOHN F. WOOLLEY,** Pleasant Ridge, Ohio. Rotary Clod-Fenders. Sep. 7, 1869.

Claim. 1. The combination and arrangement, in a rotary clod-fender for plows, of two or more annular plates L, arranged in the same plane, and straight radial arms K k, substantially as described.

2. The adjustable frame B C D E F f G, substantially as and for the purpose stated.

**94,784. LEWIS H. SHULAR,** Crawfordsville, Ind. Clod-Fenders. Sep. 14, 1869.

Claim. The parts, as represented and described herein, and shown by parts A B, B', C, D, E, F,  $\alpha$   $\alpha'$ , and  $\beta$   $\beta'$ , substantially as herein set forth.

**94,875. LOYAL M. DODDBRIDGE,** New Mount Pleasant, Ind. Rotary Clod-Fenders. Sep. 14, 1869.

Claim. 1. In combination with a plow or cultivator, a reversible revolving concave clod-fender.

2. The combination of the clip C, when constructed and attached to plow-beam, as shown, and having the stop C', with the crank-shaft B B', and dished frame A, substantially as and for the purpose set forth.

3. In the above combination, the dished dirt-pan A', substantially as and for the purpose set forth.

4. The construction of the frame A, substantially as described.

**95,079. DAVID F. BROWN,** Champaign, Ill., and **ELIJAH C. BROWN,** Crawfordsville, Ind. Shields for Corn-Plows. Sep. 21, 1869.

Claim. 1. The bar A, with rod E and teeth B B, when constructed as described, and used substantially in the manner and for the purposes set forth.

2. The arrangement of the bar C, screw-rod D, and taps or nuts  $\alpha$   $\beta$ , substantially as and for the purposes herein set forth.

3. The combination of the bar A, teeth B B, bar C, screw-rod D, taps  $\alpha$   $\beta$ , and rod E, all substantially as and for the purposes herein set forth.

**95,287. ALEXANDER B. THORNTON,** Berlin, Ill. Corn-Plow Fenders. Sep. 28, 1869.

Claim. The fender E, when constructed as described, in combination with the slotted standard D and D', or its equivalent, I and K, shown in Fig. 2, substantially as and for the purpose specified.

**95,541. CHARLES IMMANUEL VOIGT,** West Salem, Ill. Double-Shovel Plows. Oct. 5, 1869.

Claim. 1. The beam A, brace or gage-rods I, standards B, round D, bolt or round F, handles E, keepers or staples G, and bolt H, in combination with each other, when said parts are constructed and arranged substantially as herein shown and described, and for the purposes set forth.

2. The cutters J, constructed and adjustably secured to the standards B, substantially as herein shown and described, and for the purposes set forth.

3. The fender K, constructed as described, and adjustably connected to the plow-beam A and standards B, by means of the long bolt H, washers N, hook and links L, and adjustable slide M, substantially as herein shown and described, and for the purposes set forth.

**95,676. FRANCIS M. GARDNER,** Brown Township, Ohio. Clod Fender. Oct. 12, 1869.

Claim. The mode of constructing and manner of attaching a guard or clod-fender to a plow or cultivator, as shown and described.

**96,234. JAMES HIGGINS and JOHN W. HIGGINS,** Orth, Ind. Plow Clod-Fenders. Oct. 26, 1869.

Claim. The clod-fenders herein described, having wooden beam and bent plate, as specified, together with the bent teeth v, chain D, and adjustable bar E, constructed and arranged as set forth.

**96,293. LEWIS C. WITT and W. F. JONES,** Boston, Ind. Fenders for Plows. Oct. 26, 1869.

Claim. 1. A fender, constructed in the manner described, in combination with the two slotted bars B and C, the vertical rod I, and chain W, the whole being arranged and operated substantially as herein set forth.

2. In combination with the fender, as described, the lever K, ratchet-bar M, and spring N, the whole being constructed and operated substantially as set forth.

**97,201. ABRAHAM B. KING,** Camden, Ohio. Cultivators. Nov. 23, 1869. Antedated Nov. 17, 1869.

Claim. 1. The pivoted shield f, in combination with the beam D, as and for the purpose described.

2. The beam D, with its brace d, constructed and arranged substantially as described.

3. The break C', in combination with the

brace d<sup>1</sup> and projection d<sup>2</sup>, arranged and operated as and for the purpose set forth.

4. The plow described, having the weed-break, cultivator, and shield, combined and arranged as described, for the purpose set forth.

**97,785. FRANCIS M. LOWDEN and JOHN D. LOWDEN,** Lawrence, Ind. Clod-Fenders. Dec. 14, 1869.

Claim. The clod-fender herein described, when the same is constructed in its several parts and used substantially as herein set forth.

**98,041. WILLIAM L. DEARTH and G. P. RONDEBUSH,** Jefferson, Ind. Clod-Fenders. Dec. 21, 1868.

Claim. 1. A fender or plant-shield, constructed, substantially as herein described, of a single bar of rod-iron bent to form an outer frame carrying two interior longitudinal bars, and provided with suitable loops formed by twists in the bar, to receive supporting and adjusting rods or bolts, as herein set forth.

2. The supporting-device A, in combination with a fender constructed as above described, when said device is formed of a single rod, twisted, substantially as herein described.

3. The combination of the fender with its supporting-device by means of the arm o and loose bolt k, playing in eyes or loops d f g in the fender-bars, whereby the fender is made self-adjusting, substantially as herein set forth.

**98,128. JOHN W. TULL,** Zionsville, Ind. Clod-Fenders. Dec. 21, 1869.

Claim. A clod-fender, consisting of bar D, plate E, hub j, provided with arms g, g, and shield G, all combined and arranged, in combination with the plow, substantially in the manner and for the purpose described.

**98,989. DANIEL O. MOORE and FRANK REID,** Everton, Ind. Clod-Fenders. Jan. 18, 1870.

Claim. 1. The curved spring E, constructed as described, its rear end being split or forked, substantially as and for the purposes herein set forth.

2. The combination of the spring E, wheel G, supporting-bar H, rod I, and nut J, all constructed as described, and arranged to operate substantially in the manner and for the purposes herein set forth.

**99,905. GEORGE H. JACKSON,** College Corner, Ind. Clod and Corn-Stalk Fenders. Feb. 15, 1870. Antedated Feb. 5, 1870.

Claim. A clod-fender, combining in its construction a series of rods, curved in such a manner that their rear ends shall assume a horizontal position, a bar or beam to which the rods are secured, an angled iron for securing the fender in position, and an arm for securing the fender to the beam of a plow, substantially as and for the purpose set forth.

**100,325. MARK RIGELL,** Newton, Ala., assignor to himself, Robert D., William D., and Robert F. Joy, Milford, Ga. Plows. Mar. 4, 1870.

Claim. The solid plate E, provided with pivoted arm e, and sliding arm e', constructed and arranged to operate in connection with the share C and plow-beam A, in the manner and for the purpose specified.

**100,984. JOSEPH CLUCKNER,** Arcadia, Ind. Dirt-Gauges for Plows. Mar. 22, 1870.

Claim. The gauge D F, guard-loop or keeper E, and adjusting-ring G, in combination with each other and with the plow-beam or frame, said parts being constructed and operating substantially as herein shown and described, and for the purpose set forth.

**102,959. BENJAMIN F. NEELY,** Daleville, Ind. Clod-Fenders and Cultivators Combined. May 10, 1870.

Claim. The combination and arrangement of the fender E F, shovel G, connecting-rod H, hand lever I, and rack K, substantially as set forth.

**103,203. EDWARD LANNAY,** Mowrvtown, Ohio. Clod-Fenders. May 17, 1870.

Claim. 1. The flanged and adjustable clod-fender D G G', formed and adapted to operate substantially as set forth.

2. The provision of the adjustable knives H h at the front lower angle of the fender, as set forth.

3. The knives I or J J, whether single or double bladed, projecting in an upward and forward direction, arranged and adapted to operate in the manner explained.

**105,047. JOSEPH C. CURRYER, and WILLIAM F. CURRYER,** Thorntown, Ind. Fenders for Plows and Cultivators. July 5, 1870. Antedated June 30, 1870.

Claim. 1. In combination with a fender, the rear vertical rod F, constructed substantially as and for the purposes hereinbefore set forth.

2. In combination with the vertical rod F and the plow-beam, the horizontal adjustable rod H, staple G, and wedge h, all arranged and operating substantially in the manner and for the purpose set forth.

3. A fender or screen, adaptable to plows or cultivators of varied patterns and dimensions, and capable of adjustment, by and through the means hereinbefore described.

**106,064. WILLIAM B. KIDDER,** Pike Township, Ind. Clod-Fenders. Aug. 2, 1870.

Claim. A clod-fender combining in its construction an adjustable bar, B, arm C'C' thereon, and a screen, A, pivoted to such bar, substantially as set forth.

**109,511. REUBEN HARPSTER,** West Cairo, Ohio. Clod-Fenders. Nov. 22, 1870.

Claim. The construction of the adjustable spring bar I, the open-fingered fender G H, and the perforated and slotted L-shaped bar J, when the several parts are arranged in relation to the plow, as specified.

**111,631. ROBERT T. GILLESPIE,** Millport, Ohio. Clod-Fenders. Feb. 7, 1871.

Claim. 1. The shield H, constructed as described, and provided with an adjustable sliding auxiliary shield I, substantially as and for the purposes herein set forth.

2. In combination with a plow, the slotted L-shaped bars D D, hinged bars E E, with their braces G G, and the fender H I, all constructed and arranged substantially as and for the purposes herein set forth.

**111,790. ALEXANDER B. THORNTON,** New Berlin, Ill. Combined Fenders and Gauge-Wheels. Feb. 14, 1871. Antedated Feb. 11, 1871.

Claim. The arrangement, with reference to the beams A and plows C, of the fenders H, slotted standards J, and adjustable brace-bars K, all constructed as and for the purpose specified.

**112,152. JESSE KINNEY,** London, assignor to himself and Cyrus Kinney, Ingersoll, Canada. Stubble Attachments for Plows. Feb. 28, 1871.

Claim. The device C, when constructed, attached, and operating substantially as and for the purpose herein set forth.

**112,405. FORTUNE L. BAILEY,** Freeport, Ind. Clod-Fenders. Mar. 7, 1871.

Claim. The construction of the head-block A, with mortise or cavities, into which the rods or slats are put, and made secure by set-screw, wedge, or rivet, that they may be moved or taken out at will, in combination with the rods, and for the purpose set forth, or its equivalent.

**114,040. ISAAC N. PYLE,** Pleasant Mills, Ind. Cultivators. Apr. 25, 1871.

Claim. The bracket K, having the form and applied to the beams A, as shown, and the fender J and spring L arranged therewith as specified, whereby the shank of said fender has a double bearing and a vertical play in the bracket, for the purpose set forth.

**117,317. BENJAMIN F. NEELY,** Yorktown, Ind. Fenders for Plows. July 25, 1871.

Claim. A plow-fender, having a series of elastic teeth, B, combined with a perforated bar, D, movable thereon, to adjust their distance apart and thus graduate the quantity of soil that passes there-through.

**118,267. GEORGE L. PERRY,** Berlin, Wis. Clod-Fenders. Aug. 22, 1871.

Claim. An improved corn-shield, consisting of the bracket B, bolt C, bar D, and plate

E, said parts B C D E being constructed and operating in connection with each other, substantially as herein shown and described, and for the purpose set forth.

**122,087. ALANSON P. WEBBER,** Saratoga Township, Ill. Plow-Fenders. Dec. 19, 1871.

Claim. A plow-fender, consisting of the rod C provided with the convex shovel D, roller E, and either with or without block d, when adjustable vertically by means of the eye or staple bolts a, and attached to the plow-beam forward of the plow, substantially as described.

**125,732. ROBERT T. GIELESPIE,** Millport, Ohio. Clod-Fenders. Apr. 16, 1872.

Claim. The fender-shoe and scraper combined together, as described, and for the purpose set forth.

**135,896. ALBERT L. DIRST,** Seward, Ill. Clod-Fenders. Feb. 18, 1873.

Claim. The shoe a having the slots n and t, in combination with the bent adjustable bars S, arranged as shown, whereby the spaces between the bars and the distance and angle from the plows may be regulated at pleasure, as and for the purposes set forth.

**151,732. GEORGE B. VAUGHAN,** Marshall, Mo. Plows. June 9, 1874. Filed Feb. 7, 1874.

The support for the lower end of the conical, sectional roller-fender is formed upon the adjustable-cutter, which is pivoted to the land-side of the plow, and adjusted by means of a set screw working in a curved slot in the cutter.

Claim. A combined sod-cutter and fender-support, D, having a forward pivot a, a slot d, with an adjusting-screw, e, to raise or lower it, and the fender-pivot at its top to introduce or remove extra sections above the roller E for deep or shallow plowing, substantially as and for the purposes described.

**168,999. ORIN W. HOYT,** Coldwater, Mich. Fenders. Oct 19, 1875. Filed June 24, 1875.

Claim. The fender A, formed of a single piece of metal, bent into three angles, a, b, and c, as shown and described, and adjustably connected to the plow-standard by the angular shank B and bolt, as set forth.

**179,122. ASA T. MARTIN, Jr.,** Butler Co., Iowa. Plow Shields and Cleaners. June 27, 1876. Filed Aug. 13, 1875.

Claim. As a fender attachment for plows the combination of the gravitating toothed wheel A, hub B, stud b, slide C, and stirrup D, with guides d, all constructed substantially as and for the purposes herein set forth.

**183,952. ANDREW C. McLEARY,** Humboldt, Tenn., assignor of one-half his rights to J. H. Hamon and S. M. McLeary, same place. Plow-Fenders. Oct. 31, 1876. Filed Sep. 2, 1876.

Claim. The combination, with the fender attachment B of a plow, of a harrow, D, attached in adjustable manner to a curved and pivoted arm, d, of the fender, substantially as shown and described.

**189,128. E. B. MURPHY and C. D. BRAMELL,** South Point, Mo. Corn-Guards for Plows. Apr. 3, 1877. Filed Jan. 29, 1877.

Claim. The combination, with a fender and its crooked bar D E, of the hollow casting A, arc-slotted and provided with slotted lugs d', the bolts B, slotted bar C, pivot F, and spring G, all constructed and arranged substantially as and for the purpose specified.

**194,374. J. B. RUBSAM,** Springfield, Ohio. Plow - Fenders. Aug. 21, 1877. Filed June 29, 1877.

Claim. 1. An improved plow-fender and corn-straightener of semi-rhomboidal shape, with its oblique angle a' extended forward on the ground-line, and its front edge z' inclined backward from the same at an angle of about thirty-five degrees to forty degrees, substantially as shown and specified, for the purpose hereinbefore set forth.

2. The improved double adjustable ratchet-clamp C, having an eccentric base-plate c, provided with holes e e e, for adjustment upon pin f of beam C', constructed and operated substantially as shown and described, as and for the purpose hereinbefore set forth.

**205,463. RUFUS AUSTIN and WM. H. GARDINER,** Howardsville, Ill. Fenders. July 2, 1878. Filed Apr. 10, 1878.

Claim. 1. The two sharp-pointed conically-shaped lifters a a, arranged in a pair and adjustably attached to the two fenders or shields b b, combined with a wheeled cultivator, arranged and operating as set forth.

2. In combination with the said lifters and fenders, constructed in pairs, as described, the vertical bars d d, the screw-rod, and the spiral spring on the rod between the bars, constructed and arranged and operating as set forth.

**209,885. MARTIN HAIN and DAVID HAIN,** Hermann, Mo. Plow Attachments. Nov. 12, 1878. Filed May 20, 1878.

Claim. 1. The fender B, having its longer edge cut or serrated, and the cut part bent inward and outward, leaving open spaces b' between teeth b, as and for the purpose set forth.

2. The fender B, the connecting-bar C, having one end adjustably secured to the fender, the other end hinged to a casting consisting of the under and upper parts D D', the former having slot d, bearing edges d<sup>1</sup> d<sup>2</sup>, the latter having bearings d<sup>3</sup> d<sup>4</sup>, seat d<sup>4</sup>, the bolt

E, having flaring head  $\sigma$ , and plow-beam, all said parts being combined to operate as set forth.

3. The combination of the fender B, the arm or connecting-bar C, the upper and lower castings, D D', the bolt E, the cord G, cord-fastener G', the stop h, and the cord H, all said parts being constructed to operate in the manner and for the purpose set forth.

**213,948. ANDREW SIMMONS,** Green Vale, and **MICHAEL SIMMONS,** Lena, Ill. Cultivator Fenders. Apr. 1, 1879. Filed Jan. 17, 1879.

Claim. A cultivator-fender consisting of two curved pointed rods, A A, having eyes  $a'$ , and the shields B, cut away at  $b'$ , having adjustable wing C D, and connected by the bows, E, as shown and described.

**214,825. FRANCIS B. KENDALL,** Monmouth, Ill. Cultivators. Apr. 29, 1879. Filed Aug. 12, 1878.

Claim. The combination, with the shovel A, of the fender C, having the upwardly-projecting side e, with the rounded front edge  $e'$ , and the bottom face,  $e''$ , bent at right angles to the side e, embracing the lower face of the shovel, and provided with the open slots e, and the bolts d, provided with nuts, the whole constructed and arranged to operate in the manner and for the purpose set forth.

**219,163. HENRY O. KRING.** Monroe, Mich. Fenders. Sep. 2, 1879. Filed July 7, 1879.

Claim. The combination of the curved arm B, adjustably pivoted to the beam a at its outer end, and the angular bar C, having slots k l, screw i, and thumb-nut h, with the slotted shield D, pivoted to the inner end of the arm B, and provided with the curved fingers o o, and slot n and set-screw m, for angularly adjusting the shield, the whole constructed and arranged to operate in the manner and for the purpose set forth.

**226,501. LEVI DAVIS, Jr.,** Big Rock, Ill. Fenders for Cultivators. Apr. 13, 1880. Filed Jan. 17, 1880.

Claim. The cultivator-shield A, in combination with the casting C, with opening c and flanges c c', the plate D, bolt E, plate F, fitted upon the bolt and into notches G, and key l, all arranged as set forth.

**227,134. GILBERT B. SNOW,** Sugar Grove, Ill. Shields or Fenders for Corn-Cultivators. May 4, 1880. Filed Feb. 9, 1880.

Claim. The combination, in a corn-cultivator, of the shields or guards with the separate stirrup-couplings to which they are pivoted, the slotted couplings, and their jointed connecting cross-rod, said slotted connected couplings serving to allow of the lateral adjustment of the beam without interfering with the parallel positions of the shields, and of the vertical movements of said beams independ-

ent of each other while holding them in united positions for operation.

**235,140. JOHN T. DOUGLASS,** East Liverpool, Ohio. Cultivator-Guards. Dec. 7, 1870. Filed Aug. 13, 1880.

Claim. The combination, with the diverging beams of a cultivator and braces C C', provided with elongated slots a and bolts b, inserted through said slots and fastened to the outer diverging beams, of the cultivator-guard F, provided with vertically-elongated slots, in which are inserted the outer ends of braces C C', and the guard adjustably secured thereto, substantially as set forth.

**248,129. ISAAC S. BATES,** Minonk, Ill. Fender Attachments to Cultivators. Oct. 11, 1881. Filed July 14, 1881.

Claim. The combination, with the beam a, laterally-adjustable clamping-plate c, provided with adjusting-holes i, eye f, and arm g, having eye h, and adjustable clamping-plate l, of the vertical perforated rod o, pivotally secured to the fender and passing through the eyes f h, fender t, and rod u, secured at one end to the fender and provided with a hook at its opposite end, substantially as described, and for the purpose set forth.

**248,774. HOSEA P. MEGGS,** Polkton, N. C. Cotton-Scrapers. Oct. 21, 1881. Filed May 14, 1881.

Claim. 1. In a plow or scraper, the pivoted side plate or fender e, having an adjusting-slot, g, and a key-slot, l, and in combination therewith a colter, k, having a headed bolt or stud, n, substantially as specified.

2. In a plow or scraper, the combination, with the side clamp, s, and the pivoted fender e, having the adjusting-slot g and the key-slot l, of the reversible colter k, having the headed bolts or studs n at equal distances from its ends, substantially as specified.

3. The combination, with the plow-beam and its standard or stock, of the side clamp on the plow-beam, the angularly-adjustable slotted fender pivoted to said standard or stock, its colter-slot, and the reversible colter engaging said fender and side clamp, substantially as specified.

**249,740. GROVE BROWNE,** Adrian, Mich. Plow-Attachments. Nov. 22, 1881. Filed June 17, 1881.

Claim. 1. The reversible shield G, provided with bent arms H and vertical arms J, in combination with the beam and standard A B and suitable sockets fastened thereto for adjustably holding the arms J J of the shield, substantially as specified.

2. In combination with a cultivator beam and standard, the fixed socket F, rigidly secured to the standard, the slotted plate D, adjustably secured to the beam and provided with a vertical socket, E, the shield G, and the vertical bars J of said shield, substantially as specified.

3. In combination with the beam and standard, the shield G, bars H I J, and plates D F, constructed, arranged, and operating substantially as and for the purposes specified.

**250,527. GEORGE W. HAVILAND,**  
Fort Dodge, Iowa. Cultivator-Fenders.  
Dec. 6, 1881. Filed Aug. 22, 1881.

Claim. 1. A cultivator-fender made narrower behind than in front, and provided with an arc-shaped detachable screen composed of wires, in combination with vertically-adjustable pierced arms and bottom horizontal guards, arranged and constructed substantially as described.

2. The combination of the vertical pierced arms B, the horizontal bottom guards, A, and

the curved rods E, substantially as described.

3. The combination of the bottom guards, A, the outer rods, D, and the inner rods, E, substantially as described.

4. The combination of the screen C, the guards A, arms B, and outer and inner rods, D and E, substantially as described.

**265,006. LUCIEN B. BEAUMONT,**  
Alexandria, Ohio. Fenders. Sep. 26, 1882.  
Filed Jan. 25, 1882.

Claim. A plow attachment composed of a single rod or bar coiled to form a fender, and having a portion thereof extended forward for an attaching-arm and the end turned back upon itself to adapt it to be clamped to the beam, substantially as shown and described.









| <i>Plate</i>                        | <i>Claim</i> | <i>Plate</i>        | <i>Claim</i> | <i>Plate</i>                   | <i>Claim</i> |
|-------------------------------------|--------------|---------------------|--------------|--------------------------------|--------------|
| Adams, W.                           | 370 227      | Falsom, S. H.       | 388 233      | O'Callahan, J. D.              | 396 235      |
| Adams, A. B.                        | 373 228      | French, W. and      | 392 234      | Pagett, W. F. and              | 392 235      |
| Alling, P.                          | 379 230      | Prentice, J. W.     | 401 238      | Gard, S. H.                    | 382 231      |
| Armstrong, J.                       | 378 230      | Fuller, M. H.       | 370 227      | Parker, C. A. and G. R.        | 392 234      |
| Arnold, A. C.                       | 373 228      | Ganse, H. D.        | 377 229      | Perkins, C. D.                 | 387 233      |
| Baldwin, P. O.                      | 385 232      | Goodwin, W. C.      | 386 232      | Petticrew, D.                  | 377 229      |
| Beach, L. L.                        | 383 231      | Goodwin, W.         | 382 231      | Pierpont, J. Tuttle, S. S. and |              |
| Beal, T.                            | 374 229      | Gowen, W.           | 389 233      | Thomkins, C. B.                | 394 235      |
| Beecroft, N. D.                     | 388 233      | Graham, E. M.       | 371 227      | Polen, C. W.                   | 399 237      |
| Blake, W.                           | 400 238      | Guyer, J.           | 375 229      | Reed, J. E.                    | 385 232      |
| Blanchard, E.                       | 389 233      | Hall, J. A.         | 391 234      | Reed, S.                       | 392 234      |
| Blum, R.                            | 375 229      | Hall, J.            | 372 228      | Reynolds, E. D. and O. B.      | 377 230      |
| Bussell, E. F.                      | 386 232      | Halsted, J. D. and  | 376 229      | Robinson, J. A.                | 369 227      |
| Byrns, P.                           | 381 231      | A. M.               | 369 227      | Ross, A. W.                    | 390 233      |
| Carstens, N. and C.                 | 378 230      | Harris, C. A.       | 383 231      | Rox, J. S.                     | 390 234      |
| Chapman, J. H.                      | 380 230      | Hawley, E. E.       | 377 229      | Rue, N.                        | 384 232      |
| Chase, N. B. and Saunders,<br>C. W. | 370 227      | Haynsworth, H.      | 377 229      | Rue, G. W.                     | 388 223      |
| Christy, J.                         | 393 234      | Hess, G. H.         | 373 228      | Ruggles, C. F.                 | 384 232      |
| Clark, E.                           | 383 231      | Jarvis, C.          | 381 231      | Ruhlmann, E.                   | 398 236      |
| Clark, W. O.                        | 393 234      | Johnson, C. H.      | 395 235      | Ruhlmann, E.                   | 399 237      |
| Clinger, P. S.                      | 371 227      | Johnson, M.         | 397 236      | Rust, R.                       | 389 233      |
| Cole, G. W.                         | 381 231      | Johnson, M.         | 397 236      | Sanford, J. W.                 | 376 229      |
| Colvin, B.                          | 400 238      | Johnson, M.         | 398 236      | Scott, R.                      | 382 231      |
| Comstock, W. G. (II)                | 380 230      | Jones, W. G.        | 386 232      | Sherwood, A. H.                | 386 232      |
| Cane, M. D. and Douglass,<br>A. N.  | 375 220      | Jordon, D. C.       | 371 227      | Sherwood, H. B.                | 400 237      |
| Conrad, S. A.                       | 360 233      | Joynes, R. F.       | 372 227      | Skelton, W. M.                 | 391 234      |
| Coston, J.                          | 384 232      | Keefer, F.          | 375 229      | Smith, J. B.                   | 369 227      |
| Crawford, J. M.                     | 374 228      | Kelly, W. C.        | 401 238      | Smith, G.                      | 374 228      |
| Crofut, C.                          | 373 228      | Kelly, W. W.        | 400 238      | Smith, G. W.                   | 376 229      |
| Crofut, C.                          | 393 234      | Kingsland, G.       | 398 237      | Smith, W. D.                   | 385 232      |
| Culver, J. M.                       | 380 230      | Lees, J. A.         | 398 236      | Smoot, T. E.                   | 397 236      |
| Dawdy, L. J.                        | 388 233      | Lindley, N. H.      | 379 230      | Spratt, W. S.                  | 380 230      |
| Dowler, J. W.                       | 306 235      | Lindley, N. H.      | 383 232      | Taylor, B.                     | 378 230      |
| Dugdale, J. K.                      | 372 228      | Lucas, J. S.        | 396 235      | Thompson, M. V.                | 393 235      |
| Dugdale, J. K.                      | 395 235      | McCulloch, J. L.    | 394 235      | Tietjens, H. H.                | 376 229      |
| Duvall, L.                          | 384 232      | Mack, D.            | 389 233      | Trefftz, L. and Slimpert       |              |
| Eddy, H. D.                         | 399 237      | Marsh, W.           | 390 234      | G. H.                          | 379 230      |
| Emerson, C. W.                      | 371 227      | Marshall, S. M. and | 399 227      | Trigalek, F.                   | 387 233      |
| Fey, C.                             | 399 237      | Coburn, J. W.       | 381 231      | Vampill, R.                    | 396 235      |
| Finson, C. H.                       | 395 235      | Matthews, E. G.     | 309 227      | Von Achen, J.                  | 374 228      |
| Fitts, R. B. and Thackara,<br>J. W. | 372 228      | Mays, W. L. and     | 381 231      | Vo-burg, H.                    | 391 334      |
| Fitzhugh, B. G.                     | 385 232      | Tigrett, A. B.      | 395 235      | Warbasse, E. H.                | 391 234      |
|                                     |              | Moher, W. H.        | 394 235      | Warren, A.                     | 370 227      |
|                                     |              | O'Callahan, J. D.   | 382 231      | Winecoff, J.                   | 379 230      |
|                                     |              |                     |              | Winton, W. B.                  | 378 230      |

## HAND.

**955. S. M. MARSHALL and J. W. COBURN,** Dracut, Mass. Cultivators. Oct. 3, 1838.

Claim. The frame in which the wheels work, constructed and operating as above described, in combination with the wedding-harrow, &c., in the manner substantially as herein described.

**1,117. J. B SMITH,** Princess Ann Co., Va. Hand-Plows. Apr. 10, 1839.

Claim. The mode of directing the course of the machine by means of the sighting-staff, combined with the machine in the manner described, and also in the mode of adjusting the machine for different widths by shifting the wheels on the perforated shaft, as herein described.

**5,956. E. E. HAWLEY,** Middletown, Conn. Hand Plows. Dec. 5, 1848.

Claim. The tiller constructed substantially as herein described, consisting of a frame containing the tilling implements, in combination with the wheels and axle, propelling handle, and guiding brace, the whole being constructed and arranged as herein fully set forth.

**12,428. JONATHAN A. ROBINSON,** Poplin, N. H. Hand-Plows. Feb. 20, 1855.

Claim. The within-described instrument for weeding and cultivating plants in rows, the same consisting substantially of the combination of the yoke A with the knives B, constructed and operating in the manner and for the purpose set forth.

**12,478. N. B. CHASE and C. W. SAUNDERS,** Wilkinsonville, Mass. Hand Plows. Mar. 6, 1855.

Claim. The arrangement of the knives A upon the frame so as to be adjustable in an oblique direction, and also reversible, as set forth.

**12,589. HERVEY D. GANSE,** Freehold, N. J. Hand-Plows. Mar. 27, 1855.

Claim 1. That shape of the upright parts or fenders above described, in its application to the purposes above described, by which the foremost point of each fender is elevated to or above the surface of the ground, and the lower or cutting edge inclines backward from that point in the manner described, so as to secure the results described.

2. The combination of said fenders with the mold-boards and wheels in the manner above described, the invention of which mold-boards and wheels I do not claim.

**21,055. WILLIAM ADAMS,** Detroit, Mich. Hand Plows. Aug. 3, 1858.

Claim. The arrangement of the loop G, at the junction of the cross and side bars A and C, in combination with the binding pin, and

the double looped yoke extending transversely from one side bar to the other, for holding the handles E, in the manner and for the purposes specified.

**25,066. AMSEY WARREN,** Westport, Conn. Cultivators. Aug. 9, 1859.

Claim. The parting or deflecting bar D, hoes or shares E E F G, and rake C, when applied to a suitable frame A provided with wheels B, the whole being arranged and combined to operate as and for the purpose set forth.

**27,445. JOHN GUYER,** Westport, Conn. Cultivators. Mar. 13, 1860.

Claim. The arrangement of the hoes A, springs F, guides K, handle D, axle B, and tubes J, as and for the purposes shown and described.

**27,694. P. S. CLINGER,** Conestoga Centre, Pa. Hand Cultivators. Apr. 3, 1860.

Claim. The arrangement of the hinged head piece or bar A, cultivating teeth B, roller C, handle D, and check plate E, substantially as and for the purposes set forth.

**28,376. DANIEL C. JORDON,** Centre Port, N. Y. Hand Cultivators. May 22, 1860.

Claim. The combination of the several parts described, whereby is obtained adjustability and portability, when the same are arranged in the relation set forth, for the purposes specified, it being understood that I do not claim each part separately or irrespective of its substantial arrangement.

**32,128. CHAUNCEY W. EMERSON,** Albany, N. Y. Cultivators. Apr. 23, 1861.

Claim. The peculiar-formed concave cutters G, on the lower ends of the edged uprights F, with the racks H, side beam C, standard L, rake N, bars E, and wheels B, the whole being constructed and arranged for operation conjointly, as and for the purpose described.

**32,479. R. F. JOYNES,** Bristol, R. I. Cultivators. June 4, 1861.

Claim. 1. The construction and arrangement of the enclosing box A and cover B, in the manner and for the purpose set forth.

2. The arrangement and combination of the wheels G G, posts H H, bearing plates I I, and nuts L L, substantially in the manner and for the purpose specified.

3. The arrangement of the openings a a, side plates b b, and knives M M M or N N N, substantially as and for the purpose described.

4. The arrangement of the double sets of knives M M M and N N N, in combination with the reversible handle C, so that the ma-

chine may cultivate in both directions, substantially as specified.

**35,233. J. K. DUGDALE,** Richmond, Ind. Cultivators. May 13, 1862.

Claim. 1. The arrangement and combination of the adjusting apparatus composed of the perforated plate G, pin and spring I, rod E, with pinion F, working in rack e, substantially as described and for the purposes set forth.

2. The combination of the device or guides D' with the frames B and C, as and for the purpose set forth.

**35,313. J. D. and A. M. HALSTED,** Rye, N. Y. Hand Cultivators. May 20, 1862.

Claim. The combination of the sets of knives 1 1, as described, with the arms 2 2, to which they are attached, and with the clip 5, shaft or axle 3, wheels 4, handle 7, and clamps 8 8, the whole being constructed and arranged substantially as described, and operated as set forth.

**39,560. R. B. FITTS and J. W. THACKARA,** Philadelphia, Pa. Hand Cultivators. Aug. 18, 1863. Antedated Jan. 16, 1863.

Claim. 1. The stem A, in combination with the ring B, constructed and arranged to receive the detachable teeth C C C, and cutting scrapers D D D, substantially in the manner described and set forth, for the purposes specified.

2. The teeth C C C in combination with the ring B, the said teeth being arranged so that they may be detached, substantially as described for the purpose specified.

3. The cutting scrapers D D D, in combination with the ring B, the said scrapers being arranged substantially as described for the purpose specified.

4. In combination with the stem A and ring B, the cylindrical cutter E, the same being made adjustable on the stem A, substantially as described and set forth for the purposes specified.

5. In combination with the cylindrical cutter E, the detachable billling plates F F F, the said plates being formed and arranged to operate therewith in the manner substantially as described for the purpose specified.

**44,035. AARON B. ADAMS,** Westport, Conn., assignor to himself and William C. Street, Norwalk, Conn. Weeding Hoes. Aug. 30, 1864.

Claim. The adjusting slot  $\alpha$ , in combination with the pole C, wheel E, and hoe A, all constructed and operating in the manner and for the purpose substantially as herein shown and described.

**45,831. CHARLES JARVIS,** Ellsworth, Me. Cultivators and Weeder. Jan. 10, 1865.

Claim. 1. Constructing the front edges  $\pi$

of the sides g g of the cutters G so as to project beyond the latter, substantially as and for the purpose described.

2. The cutters G, arranged as described, in combination with the bar A, tongue B, and wheels F, substantially as and for the purpose specified.

**49,985. CHARLES CROFUT,** Weston, Conn. Weeding Hoes. Sep. 19, 1865.

Claim. The adjustable arrangement of the serrated gib E, and stem D, with the plain gib F, and key G, in the manner and for the purpose substantially as herein described.

**50,436. ALONZO C. ARNOLD,** Norwalk, Conn. Weeding Hoes. Oct. 17, 1865.

Claim. The set screw F and plate C, in combination with the slotted stem G, in the manner and for the purpose substantially as herein described.

**52,083. GEORGE SMITH,** Omaha City, N. T. Hand Cultivators. Jan. 16, 1866.

Claim. 1. In combination with a frame A, mounted on one or more wheels C, and arranged so as to be shoved along by the operator, a clamp for holding the plow or hoe composed of the nuts F, the bar E, placed on screw rods D D, and having a parallel position with the front bar b of said frame A, substantially as shown and described.

2. The strap B applied to the handles  $\alpha\alpha$  of the frame A, substantially as and for the purpose specified.

3. The hoe G, constructed in V-form, in combination with the upright lips or projections d at its rear ends, substantially as and for the purpose specified.

**53,061. JOSEPH VON ACHEM,** Bloomfield, Iowa. Hand Plows. Mar. 6, 1866.

Claim. 1. The combination in a garden plow, of otherwise ordinary or suitable construction, of a stationary clevis on the forward end of the plow beam, with a glide wheel hung in a swinging frame vertically adjustable in relation to the said clevis, substantially as described.

2. The combination in a garden plow, with a plow stock fixed to the beam under the arrangement described, of a reversible shovel constructed and adjusted in the manner and for the purposes herein set forth.

3. The arrangement of the cross handles on either side of the plow beam, in combination with the arched yoke on the rear end of the beam, substantially as set forth.

**57,871. JOHN M. CRAWFORD,** Newcastle, Ky. Garden Plows. Sep. 11, 1866.

Claim. The garden plow or cultivator, consisting of the slotted beam A B H I, fore and hind wheels J and K, fastening G or P, scrapers L M, guiding and propelling handle N, and interchangeable shares or cultivating instruments, substantially as set forth.

**58,578. THOMAS BEALE**, New Milford, Ill. Cultivators. Oct. 9, 1866.

Claim. The bars A A having the bar B pivoted to them, with the spade or shovel C attached to the front end of the latter, in combination with the bar E connected to the bar F, which is pivoted to A A and connected to the pivoted bar B through the medium of the rod b and guide bar D, and the scraper and hillling device G pivoted to the front ends of the bars A A, and operated from one of the pendants e by the rod H, substantially as and for the purpose set forth.

**58,814. JOEL A. HALL**, Columbus, Ohio. Garden Cultivators. Oct. 16, 1866.

Claim. 1. The cross handles or levers E attached to the side pieces D D in combination with the hoes K K, axle B, and wheels A A', substantially as described.

2. The plate T in combination with axle B, for the purpose and substantially as described.

**62,317. M. D. CONE and A. N. DOUGLASS**, Port Gibson, N. Y. Hand Cultivators. Feb. 26, 1867.

Claim. 1. Suspending the cultivator frame from a wheeled truck or barrow, by which it is drawn, substantially in the manner and for the purposes herein shown and described.

2. The jointed or hinged draft rods, or their equivalents, and the cultivator frame, either with or without the guide bars B, in combination with wheeled truck, substantially as and for the purposes set forth.

3. Providing the pivoted arm of the wheel stock S with a slot a, as shown and for the purposes set forth.

4. The arrangement of the revolving colter wheels and their vertically adjustable hangers upon the pivoted or adjustable stock S.

**63,840. REINARD BLUM**, Champaign, Ill. Hand Cultivators. Apr. 16, 1867.

Claim. The arrangement of the beam A, wheel B, shank C, provided with point or tooth D, with the handles E E and strap F, for forming a hand cultivator, substantially as specified.

**64,771. F. KEEFER**, Greenfield, Ind. Hand Plows. May 14, 1867.

Claim. 1. The arrangement of the beams A, the wheel B, roller G, and shank H, provided with the brace J and point I, as and for the purpose set forth.

2. The hinged brace E, in combination with the standard C and beams A, as and for the purpose specified.

**64,917. GEORGE W. SMITH**, Mount Olivet, Ky. Garden Cultivators. May 21, 1867.

Claim. The cultivator in its combined form, having a number of tools E F F G G H, easily detached for separate use and capable of combined use, substantially as described.

**68,469. HANS H. TIETJENS**, Lyons, Iowa. Cultivators. Sep. 3, 1867.

Claim. A hand plow, when constructed and operating substantially as described.

**69,803. CAMRELS A. HARRIS**, Austin, Ark. Hand Plows. Oct. 15, 1867.

Claim. The peculiar combination of the several parts forming a valuable and efficient garden cultivator or hand plow, set forth in accompanying drawings and described in specification, whether constructed of wood, metal, or any other material, substantially the same or answering the same purpose.

**71,794. JARED W. SANFORD**, Byron, Ill. Cultivators. Dec. 3, 1867.

Claim. 1. The adjustable standards B attached to the plow beams A and braced by bars D D', in the manner substantially as and for the purpose herein set forth.

2. The attaching of the plows or shares E to the standards B by having the former at the lower ends of cylindrical rods c, fitted in staples d at the front sides of the standards, substantially as and for the purpose specified.

3. The combination of the hoe, rake, and roller, with a cultivator, when all are constructed, arranged, and applied to admit of either the plows or the hoe, rake or roller, being used by simply inverting the implement as set forth.

**72,018. WM. C. GOODWIN**, Hamden, Conn. Hand Cultivators. Dec. 10, 1867.

Claim. 1. The combination of the frame C with the frame G, and the set screws x and y, and binding screw f, when they are constructed, arranged, and fitted for adjusting the blades, substantially as herein described and set forth.

2. The combination of the blade with the foot and shank, when the foot is made with a keel, like r, to guide the blade and strengthen the shank, substantially as herein described and set forth.

3. The combination of the handle D with the frame G, when the handle is made adjustable by means of the tongue h and set screw j, and the whole is constructed, combined, and fitted for use, substantially as herein described and set forth.

**72,852. GEORGE H. HESS**, Chicago, Ill. Weeding Machines. Dec. 31, 1867.

Claim. The machine consisting of the inclined blades A, attached to the central standard C, and the latter secured to the hand frame, having a single wheel at the front and handles at the rear, all constructed and arranged substantially as herein described.

**73,644. DAVID PETTICREW**, Westerville, Ohio. Garden Plows. Jan. 21, 1868.

Claim. A garden plow, constructed with a single shovel, A, standard B handles E, beam C, and wheel G, said parts being respectively constructed and arranged substantially as set forth.

**75,460. EDMUND D. REYNOLDS, and O. BRADFORD REYNOLDS,** North Bridgewater, Mass. Wheel Hoes. Mar. 10, 1868.

Claim. 1. In combination with the center blades *h*, (made vertically adjustable,) the rear blades *z*, made adjustable, both vertically and laterally, substantially as shown and described.

2. Supporting the vertically-adjustable standards between guide-lips *g*, substantially as described.

3. In combination with the plate to which the blades *z* are secured, the laterally sliding supports *m*, substantially as described.

4. Forming each hoe blade and its standard from a plate, bent both at right angles and with an inclination rearward, substantially as shown and described.

5. Forming the standard of the two forward blades, by welding together the two vertical plates, substantially as described.

6. In a hoe in which the blades are made adjustable, as described, applying the handle with provision for vertical adjustment, substantially as set forth.

**75,858. NICOLAUS CARSTENS and CHARLES CARSTENS,** New York, N. Y. Weeding Machines. Mar. 24, 1868.

Claim. 1. Arranging a revolving rake in rear of the cutter of a weeding machine, substantially as and for the purpose herein shown and described.

2. Pivoting the cutter of a weeding machine to the frame, so that it can swing freely on the pivots, substantially as herein shown and described.

**79,540. JAMES ARMSTRONG,** Bucyrus, Ohio. Garden Implements. July 7, 1868.

Claim. The sliding of the handle *A* through the eye of the frame *B*, so as to lock the lower roller *C*, by coming in contact with the teeth of said lower roller, in combination with all the other devices aforesaid, as herein described for the purposes set forth.

**81,034. BARNETT TAYLOR,** Forestville, Minn. Hand Cultivators. Aug. 11, 1868.

Claim. The combination of the cutters *H*, stationary upright *I*, pivoted uprights *J*, block *D*, adjustable block or bar *E*, supporting bar *F*, shovel-plow *M N*, and wedge *L*, with each other, and with the slotted beam *A* and wheel *B*, substantially as herein shown and described, and for the purpose set forth.

**81,857. W. B. WINTON,** Marion, Iowa. Hand Plows. Sep. 1, 1868.

Claim. The curved serrated spring-metal bar or plate *D*, in combination with the pivoted plow beam *C*, substantially as and for the purpose set forth.

**83,437. PRUDDEN ALLING,** Norwalk, Ohio. Garden Cultivators. Oct. 27, 1868.

Claim. The wheel *B*, cutter *C*, cultivator *D*, and beam *A*, combined and arranged to operate in the manner as and for the purpose set forth.

**84,331. JESSE WINECOFF,** Berlin, Pa. Hand Plows. Nov. 24, 1868.

Claim. The combination of two wheels, *i*, going before, and a single plow, *io*, together with a pivoted and adjustable beam, *z*, and spring *s*, arranged in the manner described, and for the purpose set forth.

**85,709. LEWIS TREFFTZ and GEORGE H. SHIMPERT,** Pinckneyville, Ill. Cultivators. Jan. 5, 1869.

Claim. 1. A combined cultivator-frame and wheelbarrow, constructed substantially as described.

2. The beams *D D*, pivoted handles *C C*, the wheel *E*, and the adjustable handle-standard *F*, combined and adapted to serve the purposes described.

3. The T-head bolts *h* and clamp-nuts *j*, or their equivalents, applied to a frame which is adapted to serve the purposes substantially as described.

**86,846. N. H. LINDLEY,** Bridgeport, Conn. Horse-Hoes. Feb. 9, 1869.

Claim. The hoe *C*, constructed and made adjustable upon its frame, substantially in the manner herein set forth.

**86,879. WILLIAM S. SPRATT,** Allegheny City, Pa., assignor to himself and W. T. Jacquith, same place. Garden-Cultivators. Feb. 9, 1869.

Claim. 1. The handles and beam, consisting of parts *A* and *B*, and provided with adjustable braces *C* and *D*, constructed and arranged substantially as herein described, and for the purpose set forth.

2. In connection with the above, the toggle-frame *E*, provided with cutters, cultivators, and teeth, constructed, arranged, and operating substantially as herein described and for the purpose set forth.

**88,275. JAMES H. CHAPMAN,** New-ton, Iowa. Garden-Cultivators. Mar. 30, 1869.

Claim. The combination of the curved arms *C C*, axle *A*, wheels *B B* and *F*, cross-bar *G* and its plates *a a*, supporting the shovels *H I K*, or their substitutes, all substantially as herein specified.

**89,634. J. M. CULVER,** Gilbertsville, Iowa. Garden-Cultivators. May 4, 1869.

Claim. The improved cultivator herein described, when constructed and arranged as specified.

**90,639. WILLIAM G. COMSTOCK,** East Hartford, Conn. Cultivators and Weeders. June 1, 1869.

Claim. The combination and arrangement of the slotted frame *B* and adjustable rakes *A*, all as constructed and operated as described.

**91,144. E. G. MATTHEWS,** Newton, Mass. Cultivators. June 8, 1869.

Claim. 1. The arrangement, with the slotted frame A and adjustable wing-frames D D, of the central wheel B, substantially as described.

2. The combination, with frames A and D, of the wheels B and F, substantially as and for the purposes set forth.

3. The arrangement of the teeth E, as respects the wheels B and F, and each other, as shown and described.

4. The plant-lifting arms J J, substantially as and for the purposes set forth.

**92,581. PHILANDER BYRNS,** Min-doro, Wis. Hand Cultivators. July 13, 1869.

Claim. The combination of the barrow, A, pivoted frame B, cultivators c c, water tank D, provided with sliding door d lever d<sup>1</sup>, pipes B' B', and sprinkler E, all combined arranged, and operating substantially in the manner and for the purpose described.

**92,835. C. H. JOHNSON,** Morristown, N. J. Cultivators. July 20, 1869.

Claim. 1. The attachable and removable curved teeth a, constructed and applied for operating substantially as herein described.

2. The attachable and removable scrapers a', with horizontal cutting edges, substantially as and for the purpose herein set forth.

3. The combination of the rollers C C and knives b, as applied to a cultivator, substantially as and for the purpose herein set forth.

**93,277. G. W. COLE,** Farmington, Ill. Garden-Plows. Aug. 3, 1869.

Claim. The garden-plow described, consisting of the handles A A, wheel B, U-shaped rod C, and slotted standard D, rod E, cone-shaped blocks F F, and braces G, when constructed substantially as described, for the purpose set forth.

**93,431. WILLIAM GOWEN,** Bartlett, Tenn. Hand-Plow. Aug. 10, 1869.

Claim. 1. The adjustable frame B, constructed as described, in combination with the beam A, as and for the purpose set forth.

2. The combination of the detachable shovel-plow C with the adjustable plow-frame B and beam A, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the detachable turn-plow D, with the adjustable plow-frame B and beam A, substantially as herein shown and described, and for the purpose set forth.

4. The combination of the detachable scraper E with the adjustable frame B and beam A, substantially as herein shown and described, and for the purpose set forth.

**94,434. WASHINGTON F. PAGETT and SILAS H. GARD,** Springfield, Ohio. Garden-Plows. Aug. 31, 1869.

Claim. 1. The foundation-plate C, con-

structed substantially as and for the purpose specified.

2. The arrangement and combination of the foundation C with beam A, plow P, scraper D, arm E, chaser F, and wheels W R, substantially as and for the purpose specified.

3. The arrangement of the cross-bar I and nibs H H, in connection with the standard or beam A' when used in connection with a plow, substantially as and for the purpose described.

4. The combination of parts i, i<sup>1</sup>, i<sup>2</sup>, i<sup>3</sup>, t s, c, R, constructed as described, and as specifically shown in Fig. 3, and for the purpose set forth.

**94,657. ROBERT SCOTT,** La Porte, Ind. Garden-Plows. Sep. 7, 1869.

Claim. 1. The arrangement, herein described, of the handles A A the head-block C, or the substitution therefor of the bent handles above described, the post F with its braces K K, and the regulating slot H, or the substitution therefor of the holes N N N, or the slot indicated by the dotted line in Fig. 3.

2. The wheel D, with a single shovel following after it, and the general wheelbarrow-like arrangement, whereby the plow is made easy to handle and push in a straight line, and whereby it may be raised or lowered by the handles so as to plow deep or light as occasion requires.

**95,718. JOHN D. O'CALLAHAN,** Cal-houn, Ga. Combined Wheelbarrows and Garden-Plows. Oct. 12, 1869.

Claim. 1. The herein-described combination of the plow A E and whellbarrow D G, as specified.

2. The herein-described manner of attaching the plow to the handles of the frame of the barrow, by means of the cross-piece d, leather strap e, link f, and braces a a, as shown and described.

**95,986. EBENEZER CLARK,** Rush-ville, Ill. Hand-Cultivators. Oct. 19, 1869.

Claim. The metal shanks B B, being ad-justed by the rod D, and the attaching and de-taching of the shanks B B, to and from the handle C, by the bolts F F, as shown and described.

**97,508. HENRY HAYNSWORTH,** Sumter, S. C. Garden Plows and Markers. Dec. 7, 1869.

Claim. The herein-described improved garden-plow and marker, consisting of the beam A, wheel B, plow D, arm F, and marker G, all combined and arranged substantially as specified.

**98,337. LUMAN L. BEACH,** Mount Upton, N. Y. Hand-Cultivators. Dec. 8, 1869.

Claim. 1. The implement, consisting of the frame A, with the cross-bars I and I', with the uprights B, and the adjustable handle C H, and the wheel D, all constructed and arranged substantially as described.

**2.** The combination of the cross-bars I I', adjustable bars J J', provided with the notches e and standards E, when secured by the bolts n, as set forth.

**98,983. N. H. LINDLEY,** Bridgeport, Conn. Horse-Hoes. Jan. 18, 1870.

Claim. **1.** The yoke D, attached to the beam upon opposite sides, and arranged in slots, so as to swing to the right or left, for the purpose and in the manner described.

**2.** In combination with the hoe A, the adjustable tooth E, as and for the purpose specified.

**99,543. LEWIS DUVALL,** Big Spring, Ky. Hand-Cultivators. Feb. 8, 1870.

Claim. The handles E and F, when arranged as described, in combination with the share A, shank C, and bar D, substantially as herein set forth.

**112,497. NELSON RUE,** Harrodsburg, Ky. Hand-Plows. Mar. 7, 1871.

Claim. The within-described hand-plow, composed of the bent bars A A, wheel B, perforated plates E E, and handles D D, adapted to receive either of the plow-beams C, L, or I, all constructed substantially as set forth.

**115,526. CALEB F. RUGGLES,** Henderson, Ky. Garden-Cultivators. May 3, 1871.

Claim. The combination of the bent and curved bar A, having angular arms a a, with the mortised helve B B, which support the movable plows or shovels, and secured by the set-screws b, all substantially as shown and described.

**115,710. JOHN COSTON,** Bowden, Ga. Plows. June 6, 1871.

Claim. **1.** The combination of the foot E, arm h h, handles A A, cross-bar d, and latches e e, all constructed and arranged substantially as and for the purposes herein set forth.

**2.** The reversible plowshare G, pointed at both ends, and provided with two sets of holes h i, in combination with the foot E, bolts k m, tap n, and brace p, all substantially as and for the purposes herein set forth.

**115,771. J. EUGENE REED,** Mineville, N. Y. Cultivators. June 6, 1871.

Claim. In combination with the curved and perforated beams A A and wheel E, the pivoted shafts D D with breast-plates H H, strap I, bar G, and strap d, all constructed substantially as and for the purposes set forth.

**117,034. PHINEAS ORLANDO BALDWIN,** Spring Lake, Mich. Cultivators. July 18, 1871.

Claim. **1.** The arrangement of the spring C provided with bolt e with the beam B provided with the post m, and the tongue D, when each of said parts is constructed to operate substantially as and for the purposes set forth.

**2.** In combination with the beams B K, the sectional extension guides G, lever F, and the extension of the spring E provided with latch-bolts g and g', substantially as and for the purposes set forth.

**118,290. WILLIAM D. SMITH,** Homer-ville, Ga. Hand Garden-Plows. Aug. 22, 1871.

Claim. A garden-plow, consisting of two acute-angled blades, B C, and upwardly-rising shank, A, and a fender, D E F, when all are constructed so that the plow may be operated by hand, as described.

**119,973. BENJAMIN G. FITZHUGH,** Frederick, Md. Combined Wheelbarrows and Hand-Plows. Oct. 17, 1871.

Claim. The divided hand-frame A having a supporting-wheel, C, an inclined division-bar, a, link c, and locking-pin b adapted to receive and hold the projecting tongue or hold-fast of a harrow-box, D, or the shank of a tilling device, as described.

**123,944. ARTHUR H. SHERWOOD,** Southport, Conn., assignor to himself, John S. Fray, and Horace Pigg. Weeding-Machine. Feb. 20, 1872.

Claim. The vibrating levers D, provided with a fork or equivalent device at the lower end, and arranged to operate substantially as set forth.

**124,140. WILLIAM G. JONES,** Marshall, Tex. Hand-Cultivators. Feb. 27, 1872.

Claim. The adjustable tongue D' having the bent shank D'' with enlargement d', in combination with the stock A having the plows B, tapering aperture D, and notches d'', as and for the purpose specified.

**124,810. WILLIAM GOODWIN,** Marblehead, assignor to Franklin F. Holbrook, and Thomas B. Everett, Boston, Mass. Hand-Hoe Cultivators. Mar. 19, 1872.

Claim. **1.** The combination, with the bottom cutting-blade of a hoe or weeder, of forwardly-projecting cutting flukes or side cutting-guards D D, substantially as shown and described.

**2.** The combination, with the cutting and wheel devices in a hand-wheel hoe of an adjustable handle for the purposes stated.

**3.** The combination, with the bar A which supports the cutting-blade B, of the adjustable handle E and adjusting wedge F, substantially as and for the purposes set forth.

**129,712. ERASTUS T. BUSSELL,** Indianapolis, Ind. Cultivators. July 23, 1872. Antedated June 15, 1872.

Claim. **1.** A plain disk, A, and either a concavo-convex disk, C', or a disk C, connected by a bar, B, provided with a stud, D, having sockets h i j, substantially as and for the purposes hereinbefore specified.

**2.** The handle F, having shanks E and G and a vine-guard, N, in combination with a

plain disk, A, and either a concavo convex disk, C', or a disk, C, connected by a bar B, having a stud D, provided with sockets *h i j*, as and for the purpose hereinbefore specified.

**131,066. CALVIN D. PERKINS,** Princeton, Ill. Cultivators. Sep. 3, 1872.

Claim. 1. The slotted semicircular bars A, made with projecting ends *a'* to receive the adjustable connecting-bolts B C, substantially as herein shown and described, and for the purpose set forth.

2. The slotted bars D, in combination with the bolt C and forward ends *a'* of the slotted semicircular bars A, for the purpose of connecting the drive-wheels F with said bars A adjustably, substantially as herein shown and described.

**132,504. FREDERIC TRIGALET,** Astoria, N. Y. Cultivators. Oct. 22, 1872.

Claim. A cultivator having a series of U-shaped blades or cutters, the limbs of each of which are arranged at different angles to each other on the line of travel, substantially as shown and described, for the purpose set forth.

**133,932. SAMUEL H. FOLSOM,** Winchester, Mass. Hoes. Dec. 17, 1872.

Claim. 1. In a hoe or cultivator mounted on two wheels, the two axles, B and B', the axes of which are in line with each other, but separated for the purpose herein set forth, and connected by the arch C rising above the plants and extending forward to receive the handle D, whether said axles and arch are cast in one piece or in separate pieces and bolted together, substantially as described.

2. In a hoe or cultivator mounted on wheels and arranged to work on both sides of the same row of plants, the cutters *ff'* placed directly under the axle and attached thereto in such a manner that they may be readily adjusted toward or from each other in the direction of the length of the axle and also to a greater or less distance from said axle in a vertical direction, substantially as described.

3. In combination with the cutters *ff'*, the rakes *gg'*, arranged and operating substantially as described, for the purpose specified.

**136,020. NORVAL D. BEECROFT,** Bangor, Me. Hoes. Feb. 18, 1873.

Claim. The combination of the wheel *a*, handles *b b*, and hoe-blade *e*, secured, substantially as described—to wit, by plates *ff* and *h*, pivot *g*, and bolt *n*,—to a vertically-adjustable standard, *d*, all operating substantially as set forth, for the purposes specified.

**136,220. LANSING J. DAWDY,** Hamburg, Iowa. Hand-Cultivators. Feb. 25, 1873.

Claim. The within-described garden-implement, consisting of the frame A B, wheel C, knife G, and bows D D, pivoted at one end and perforated at the other end, by which means they are made adjustable, all substantially as set forth.

**137,098. GEORGE W. RUE,** Hamilton, Ohio. Hand-Cultivators. Mar. 25, 1873.

Claim. The combination of front frame *a* with frame B, or its equivalent, so constructed as to admit of the use of one or more of the standards *A*, upon which either of the interchangeable tools D E H M may be secured, substantially as described, for the purposes specified.

**137,124. EDMOND BLANCHARD,** Poolesville, Md. Combined Garden Hoes and Rollers. Mar. 25, 1873.

Claim. A garden implement formed of the hoe A, curved and beveled or twisted plate B, shank or eye C, arms D, and roller E, constructed and arranged in connection with each other, substantially as herein shown and described, and for the purpose set forth.

**139,001. EVANDER M. GRAHAM,** Vernon, La. Cultivators. May 20, 1873.

Filed May 16, 1872.

Claim. 1. The combination of the frame A B, wheels D, axles *x*, hooks I, rod L, and rack or frame E, adapted to receive plows H or other cultivating devices, substantially as shown and described.

2. The combination of the bars E<sup>2</sup> E<sup>3</sup>, bolts and nuts 1 2 3 4 5 6 7 8 9 10, and blocks F with the frame A B, substantially as shown and described.

3. The grooves *y* in the frame A B, in combination with the notches *z* in the rack or frame E, substantially as and for the purpose described and set forth.

**139,193. REUBEN RUST,** Odessa, Del. Cultivators. May 20, 1873. Filed Sep. 28, 1872.

Claim. The hand-cultivator described, having the central beam A, provided with the handle B, and tooth D, removable side beams B', and solid triangular-pointed teeth D', having upright shanks E, together with the coupling-band C, substantially as specified.

**144,912. DAVID MACK,** Barnsville, Kans. Garden - Cultivating Implements. Nov. 25, 1873. Filed June 28, 1873.

Claim. The combination of wheel D, jointed beam E A, rear roller L, and standard F, with horizontal weed-cutter J and rearward-superposed rake I, as and for the purpose described.

**144,927. AMOS W. ROSS,** Northfield, Mass. Hand Cultivators. Nov. 25, 1873. Filed Sep. 13, 1873.

Claim. The combination of the wheels A, axle B, handles C, and cross-bar D with the pivoted side bars F, pivoted middle bars G, the plows, the keepers H, guards I, and hillers M, substantially as herein shown and described.

**145,153. SAMUEL A. CONRAD,** Centraillia, Ill. Hand - Cultivators. Dec. 2, 1873. Filed Nov. 6, 1873.

Claim. The within-described hand - culti-

vator, consisting of the triangular teeth or blades A, shank B, bar C, and intermediate teeth D, all substantially as and for the purpose herein set forth.

**146,712. JAMES SIDNEY ROYS,** Hudson, Mich. Wheeled - Hoes. Jan. 20, 1874. Filed Oct. 3, 1873.

Claim. The combination of the axle A, wheels B B, stationary handle C, pivoted handle D, and hoes J J, all constructed and arranged substantially as and for the purposes herein set forth.

**148,226. WILLIAM MARSH,** San Prairie, Wis. Hand - Cultivators. Mar. 3, 1874. Filed Oct. 13, 1873.

Claim. 1. The adjustable arms h, pivoted to the frame of a cultivator, in combination with the rotating guards g, substantially as described, for the purpose specified.

2. The parallel side beams b b, having the teeth f and rotating guards g, in combination with the slotted plates e e and central beam a, substantially as and for the purposes specified.

3. In combination with the elongated central beam a, guide wheel d, slotted transverse plates plates e, and parallel side beams b, the teeth f, pivoted arms h, and rotating guards g, substantially as described, for the purpose specified.

**149,083. ELIAS H. WAR BASSE,** Philadelphia, Pa. Wheeled Hoes. Mar. 31, 1874. Filed Dec. 31, 1873.

Claim. In a wheeled hoe, the combination of the curved slotted arms C C, hoes G G', revolving disks F F', and bolts D D', substantially as herein shown and described.

**153,865. H. VOSBURG,** Utica, Mich. Garden-Scarifiers. Aug. 1874. Filed Apr. 13, 1874.

Claim. In combination, the adjustable handles A, and pivoted adjustable standards D, with the blade E and slotted pivoted braces F, constructed and arranged substantially as described, and operating in the manner and for the purpose set forth.

**156,482. J. HALL,** Shell Rock, Iowa. Cultivators. Nov. 3, 1874. Filed Sep. 5, 1874.

Claim. The shank C, secured to the two-edged blade B, and pivoted to the handle A, and constructed with a segment, e, on one end, in combination with the guide-plate d and set-screw e, substantially as described.

**156,715. WM. M. SKELTON,** Green-castle, Ind. Combined Hand Rakes and Rollers. Nov. 10, 1874. Filed Apr. 25, 1874.

Claim. The solid metel bar B, provided with the point-band C, and with the shoulder-band D, in combination with the wooden axle, A, having a longitudinal vertical slot through the spindle and beyond the shoulder a of the

axle, substantially as and for the purposes set forth.

**156,919. W. FRENCH and J. W. PRENTICE,** Nelson, Mich. Hand-Cultivators. Nov. 17, 1874. Filed June 23, 1874.

Claim. A hand-cultivator having the horizontal cutting-teeth P, provided with curved standards and fenders, the backward curved knife S, and the removable tongue T attached by hooks and slots, as shown and described, and for the purposes set forth.

**157,078. CHARLES A. PARKER and GARDNER R. PARKER,** Worcester, Mass. Hand Snow-Plows. Nov. 24, 1874. Filed May 4, 1874.

Claim. In a hand snow-plow, the combination, with the point A and rear part of the wings B B, of the shoes or bearers E, substantially as and for the purpose set forth.

**157,761. SAM'L. REED,** Liberty Grove, Md. Cultivators. Dec. 15, 1874. Filed June 24, 1874.

Claim. 1. The combination of the beam a, handles e, wheel g, pivoted draft-bar h provided with springs, and hand lever and guides j, substantially as set forth.

2. A hand-cultivator having a beam and handles, and provided with a pivoted draft-bar h, having the spring l e and cross-bar i and guide j, whereby the cultivator can be drawn or forced through the ground, substantially as shown and described.

**162,900. WILLIAM O. CLARK,** Northampton, Mass. Cultivators. May 4, 1875. Filed Apr. 14, 1875.

Claim. The improved cultivator described, consisting of the frame-work A B B' L, provided with the wheels M N, springs i, rods H, pendulous pivoted beams F, and shares G, combined and arranged to operate substantially as and for the purpose specified.

**166,506. CHARLES CROFUT,** Weston, Conn., assignor of one-half his right to M. Buckley and Wm. H. Crofut, same place. Weeding Implements. Aug. 10, 1875. Filed May 11, 1875.

Claim. In a weeding-machine, the combination of the shank F, constructed with vertical grooves d and transverse notches b, and the slot B, the notches a, and projections e in the socket, and the clamping-bolt, substantially as set forth.

**168,234. JNO. CHRISTY,** Clyde, Ohio., assignor of one-half his right to Miller Hunter and Byron O. Brigham, same place. Garden Implements. Sep. 28, 1875. Filed July 10, 1875.

Claim. In combination, with the double-edged hoe D, secured rigidly to the frame A, the pivoted rake G, the tines of which are extended below the horizontal portion of the hoe, substantially in the manner and for the purposes described.

**171,706.** M. Y. THOMPSON, Arkadelphia, Ark. Hand - Plows. Jan. 4, 1876. Filed Aug. 14, 1875.

Claim. The combination of the bars A A', having their ends twisted and bent backward, as described, with the wooden handles G, the wheel upon which the plow is mounted, and the plow-share attached to said bars, substantially as herein described and shown.

**173,179.** JOSHUA PIERPONT and SIDNEY S. TUTTLE, Bushnell, and C. B. TOMPKINS, Lewiston, Ill., assignors to Pierpont and Tuttle. Hand-Cultivators. Feb. 8, 1876. Filed Nov. 4, 1875.

Claim. 1. In a hand-cultivator, the combination of the pivoted and adjustable handle G with the tongue A and fixed handle F, substantially as and for the purpose specified.

2. In a hand-cultivator, the combination of the pivoted and adjustable handle G, fixed handle F, and draft-bar E, substantially as and for the purpose specified.

**173,324.** WM. H. MOSHER, Owosso, Mich. Cultivators. Feb. 8, 1876. Filed Nov. 6, 1875.

Claim. In a weeder, the combination of the beam sections A A', connected by arched braces B, and provided with spaced transverse slots d d', the horizontally-vibratory and laterally-adjustable weed-cutting blades E, and the plow G, substantially as specified.

**176,438.** J. L. McCULLOCH, Davenport, Iowa. Cultivators. Apr. 25, 1876. Filed Aug. 18, 1875.

Claim. In a garden-cultivator, the combination of the frame adjustable laterally at both ends, the wheels C C' having cutting-flanges, and adjusting with the frame, the horizontal weed-cutters D G, and the hinged fork H, all arranged and operating substantially as described, and for the purposes set forth.

**176,845.** JAMES K. DUGDALE, White Water, Ind. Hand-Cultivators. May 2, 1876. Filed Dec. 20, 1875.

Claim. 1. The curved side pieces extended beyond the wheel, in combination with arched frame B, provided with vertical bars c c' and sockets d d', as and for the purpose specified.

2. In combination with frames A and B, provided with guides c' and device F, the frame C, provided with notches k, as described and set forth.

3. The adjustable arm E, in combination with frame C, as and for the purpose set forth.

4. The device F, serving both as a pin and button, in combination with frame C, having notches k, as and for the purpose described.

**176,963.** M. JOHNSON, Lockport, N. Y. Garden-Weeders. May 2, 1876. Filed Apr. 15, 1876.

Claim. The rotating axle C, having ratchet-wheel E and radial arms d, for the attachment of cultivating devices, in combination with the

spring tooth-pawl G, substantially as and for the purpose set forth.

**177,262.** WILLIAM L. MAYS and ANDREW B. TIGRETT, Dyersburg, Tenn. Hand-Plows. May 9, 1876. Filed Aug. 7, 1875.

Claim. The single-wheel hand-cultivator herein described, having the handle-levers A A', carrying the journals of the wheel B, and extended forward and downward beyond said journals in a spread position, the oblique shovel-beam D, bifurcated at d d', provided with the adjusting perforations e e', and pivoted to the spread extended ends of said levers, and the adjustable connecting-braces E, constructed and arranged as shown and described.

**177,390.** CHARLES H. FINSON, Pittsfield, assignor of one-half his right to Henry McLaughlin, Bangor, Me. Wheel-Hoes. May 16, 1876. Filed Mar. 1, 1876.

Claim. 1. The cutter-arms C C', having the reverse curves, as shown, each arm hung adjustably at one end to the wheel-axle, and connected at their rear ends by the blade or knife D.

2. In combination with the reversely-curved arms C C', hung as shown and described, and connected by the blade D, the handles B B', connected directly to the upper short curves of arms C C' at points near the axis of the wheel.

**181,380.** RUDOLPH VAMPILL, Mullins, S. C. Wheel - Hoes. Aug. 22, 1876. Filed July 22, 1876.

Claim. An improved wheel-hoe, formed of the handle A, the diamond-shaped frame B, provided with the slotted cross-head lugs b', and the cutter-seat lugs b'', the wheel C and axle-bolt c', and the knife D, constructed and combined with each other, substantially as herein shown and described.

**182,374.** JAMES S. LUCAS, Bowling Green, Ky. Hand - Cultivators. Sep. 19, 1876. Filed July 11, 1876.

Claim. The combination of the spreading wings A, cultivator-teeth C, cutting or pruning knives D, and handle B, all constructed and relatively arranged as herein shown, for the purpose set forth.

**186,606.** J. D. O'CALLAGHAN, Chattanooga, Tenn. Combined Wheelbarrows and Garden - Cultivators. Jan. 23, 1877. Filed Nov. 13, 1876.

Claim. The combination of the hinged legs X and connecting-rod D with the removable tray A and wheeled frame B, as shown and described, for the purpose of adapting the frame for attachment of and use with a cultivating device, as set forth.

**187,222.** JOSEPH W. DOWLER, St. Louis, Mo. Hand - Cultivators. Feb. 13, 1877. Filed May 11, 1876.

Claim. The shoulder-frame B, consisting of the beams b b', having crutch parts b'', truck

A, bolts D, springs F, plow attachment C, consisting of plow-beams e' e'', plows E, all said parts being constructed and combined, as shown and described, to operate in the manner and for the purposes set forth.

**188,917. MOSES JOHNSON,** Lockport, N. Y. Hand Garden-Weeders. Mar. 22, 1877. Filed Sep. 16, 1876.

Claim. 1. The vertically and horizontally adjustable standard D, provided at one end with a plow-point E, and at the other end with weeding-knives F F, substantially as described, and for the purpose set forth.

2. The knives F F having each a transverse handle f, curved shank f<sup>1</sup>, and blade f<sup>2</sup> in combination with the slotted holder G, block H, and thumb-screw I, substantially as and for the purpose set forth.

3. Wheel-supporting arms B B, in combination with handles A A, wheel C, and adjustable standard D, said devices being reversible, and adapted to operate equally well in either position, substantially as set forth.

**192,697. MOSES JOHNSON,** Lockport, N. Y., assignor of one-half his right to M. C. Richardson, same place. Diggers and Weeders. Jan. 3, 1877. Filed Dec. 23, 1876.

Claim. 1. In a hand-digger, the combination of a transporting-wheel with a curved beam concentric with the upper part of said wheel, and pivoted to the axis of the latter by braces, substantially as described.

2. The combination of handles E E with bars B and D, curved beam C, and wheel A, substantially as set forth.

3. The combination of the curved beam C, with disks G G, perforated at g g g g, and with standards H attached thereto.

4. Standards H, provided with adjusting-rods i, in combination with disks G, having perforations g, and with curved beams C, substantially as set forth.

5. As an article of manufacture, standard H, provided with rods h and bracing-plate G, and rigidly secured to upright shank J<sup>2</sup> of the weeder-blade J<sup>1</sup>, substantially as and for the purpose set forth.

**194,007. T. E SMOOT,** Florence, Ala., assignor of one-third his right to A. M. Parkhill, same place. Garden-Plows. Aug. 7, 1877. Filed May 24, 1877.

Claim. The combination with a garden-plow having a front wheel, D, beam A and handles C, of a reversible push or draft bar, G, having breast-piece f, and forked lower end pivoted directly to the axle of said wheel upon opposite sides of the same, as and for the purpose set forth.

**194,977. EUGENE RUHLMANN,** Lockport, N. Y. Garden Wheel-Hoes. Sep. 11, 1877. Filed Apr. 28, 1877.

Claim. 1. A combined wheel hoe and rake, consisting essentially of the bed-plate B, pro-

vided with channels and slots d, and with bearings for the wheel N and notches r' of the cutters A, adjustably secured within said channels, and the rake pivoted near the front end of said bed-plate, and having its curved teeth arranged to pass through said notches r', the whole constructed and arranged substantially as and for the purpose specified.

2. The combination, with the bed-plate B, having the series of notches r' r', of the lever C', pivoted to said bed-plate at e, and provided with curved teeth arranged obliquely in relation to the lever C', as stated.

3. A platform for a combined cultivator and weeder, consisting essentially of a plate whose forward part is bifurcated, and each fork provided with an eye whose middle part has two transverse slot-holes, d, terminating in channels on the under side of said plate, and whose rear end is downwardly deflected, and has a series of excisions, r', along its oblique edge, all substantially as described, the whole produced entire in the process of casting, as and for the purpose specified.

4. In a hand-cultivator, the combination, with the vertically-adjustable poles D D', of the radially-adjustable handles E, said handles being composed of the bails connected by the rods G, and provided with the circular disk F, having radial corrugations, as described, and adjustably secured to plates E' fixed to the extremities of said poles, and provided with radial corrugations corresponding to those of the disk F, the whole being constructed and arranged to adapt the position of the handles to the wrists of the operator without changing the position of the poles, substantially as and for the use and purpose stated.

5. A combined wheel hoe and rake, consisting essentially of the bifurcated bed-plate B, mounted upon the wheel N between the fork, the hoes A secured to the plate B, with capability of lateral adjustment, the rake pivoted to the forward end of the plate B, and having its curved teeth r passing through the excisions r', the vertically-adjustable poles D D', and the radially-adjustable handles E, the whole constructed and arranged substantially as and for the purpose specified.

**197,731. MOSES JOHNSON,** Lockport, N. Y., assignor of one-half his right to Moses C. Richardson, same place. Garden-Weeders. Dec. 4, 1877. Filed Sep. 29, 1877.

Claim. 1. The adjustable quadrangular frame B, pivoted to frame A, and provided with a spring-clutch E', standards C, and knives D, projecting obliquely to embrace the space between the standards, all arranged to operate substantially as shown and described.

2. The frame B, pivoted to beam A, and provided with vertical bar I and spring-clutch E', substantially as shown, and for the purpose specified.

**198,129. JONATHAN A. LEES,** Philadelphia, Pa. Weed-Cutters. Dec. 11, 1877. Filed June 29, 1877.

**Claim.** 1. The blade D, having a cutting-edge curved on an arc of a circle, and extending horizontally in a right line from side to side, so that every portion of said edge shall lie in the same plane, and having its upper face extending rearwardly in an upward uniformly-curved direction, in combination with the upturned sides f f, and the shank a, terminating in a shoe b, to which the blade is removably connected, substantially as described.

2. The beam A, with teeth B, and provided with the rear extension C, leaving spaces at the sides of the latter, in combination with the blade D, connected to the extension C, and having turned up sides f, and, with the handles G, secured to the front end of the beam A, substantially as described.

**202,951. GEORGE KINGSLAND,**  
Kingsland, N. J. Strawberry-Vine Cutters.  
Apr. 30, 1878. Filed Feb. 26, 1878.

**Claim.** 1. The reversible rake D, connected with the axle B by the rods d, in combination with the sharp-edged wheels or circular cutters C on said axle, whereby the apparatus is made capable of use either by drawing or pushing, substantially as herein set forth.

2. The organized apparatus, comprising the sharp-edged wheels or circular cutters C, adjustable on the axle B by means of the set-screws e, the reversible rake D, and the frame A, provided with a tongue or draft-pole, the whole combined for use and operation substantially as herein set forth.

**203,643. CALVIN W. POLEN** Hazel Dell, Ill. Garden-Hoes. May 14, 1878.  
Filed Mar. 29, 1878.

**Claim.** The hand-bar frame A, consisting of a plate, with the open arch a, the socket a<sup>1</sup>, and the horizontal slotted arms a<sup>2</sup> a<sup>3</sup>, in combination with handle B, braces C, and hoes D, substantially as shown and described.

**207,495. CHARLES FEY,** Brooklyn, N. Y. Malt-Plows. Aug. 27, 1878. Filed Mar. 13, 1878.

**Claim.** The combination, in a malt-plow, of a plowshare, A, a supporting-plate B, and a handle, C, substantially as shown and described.

**212,575. EUGENE RUHLMANN,** Lockport, N. Y. Cultivators. Feb. 25, 1879. Filed June 18, 1878.

**Claim.** 1. The combination, with the platform A, of the cultivator hoes or knives described, having the beveled shanks z, engaging the beveled lugs c c', said hoes being adjustably held to the platform by the clamping-plate i, having its beveled edges engaging the adjacent beveled edges of said shanks z, as and for the purpose specified.

2. As an improved article of manufacture, cultivator knives constructed entirely of sheet metal, said knives having the standards 4 arranged obliquely to the plane of the blades 5, and their upper ends provided with radial pro-

jections and indentations 3, stamped into said standards, substantially in the manner as and for the purpose specified.

3. The knives described, consisting of the separate shanks 2, having beveled edges, and one end bent at right angles, said bent end being provided with radial indentations around the bolt-hole, and the knives 5, provided on their uprights 4 with the radial projections 3, said knives being secured to the shanks 2 by the bolts 6, as specified.

4. In a cultivator, the knives described, having the front shank, 2, forwardly and the rear shank rearwardly inclined, and provided with detachable knives, having the part 4 forwardly, the part 5 rearwardly, and the corners 7 downwardly inclined, as and for the object specified.

**214,496. HORACE D. EDDY,** Glenville, Ohio, assignor of one-half his right to Robert Foster, same place. Sod Trimmers. Filed Dec. 31, 1878. Apr. 22, 1879.

**Claim.** 1. In a sod-trimmer, the combination, with one of the axle-adjusting plates, of the plow connected therewith, and adapted to be adjusted vertically with reference to said plate, substantially as set forth.

2. In a sod-trimmer, the combination, with one of the axle-adjusting plates, of the plow-colter connected therewith, and adapted to be adjusted vertically with reference to said plate, substantially as set forth.

3. In a sod-trimmer, the combination, with the two part axle, of the adjusting-plates respectively secured to each axle part, said plates, one or both, being provided with a plow and rotary colter, connected therewith in a manner whereby they may be vertically adjusted, substantially as set forth.

**237,057. HENRY B. SHERWOOD,** Westport, Conn. Hand-Cultivators. Jan. 25, 1881. Filed Aug. 19, 1880.

**Claim.** 1. In a hand-cultivators, the combination of the wheel A, the forked and slotted beam B, the axle-bolt C, the bent standard D, carrying hoe G, and having a serrated forward end engaging the serrated holding-block F, the handle-holder I, the handle J, the arm M, and the spiral spring O P, as and for the purpose specified.

2. In a hand-cultivator, the combination, with the beam B and the handle-holder I, of the curved and channeled arm M, the fastening N, and the spiral spring, made in two parts, O P, the lower part, O, having its upper end bent inward to engage with the channeled arm M, and the upper part, P, having its upper end bent upward to engage with the cross-bar of the handle-holder I, whereby the handle can be adjusted at any desired inclination, as set forth.

3. The combination, with the bars T, carrying the fender-plates S and the beam B, of the connecting-rod W, having a U-bend or loop in its middle part to receive the beam, substantially as herein shown and described, whereby a

lateral movement of the fenders is prevented, as set forth.

**258,305. WALTER W. KELLY,**

Hastings, Mich. Combined Wheelbarrows and Cultivators. May 23, 1882. Filed Dec. 28, 1881.

Claim. In a combined wheelbarrow and cultivator, the wooden side bars and handles A B, having metal extensions b to support the wheel c, and provided with bent metal cross-bars A' and with upturned stakes I, in combination with the legs D, each made of a single piece of bent metal, and hinged to and between the cross-bars A', the socket E, secured to the front cross-bar, the shovel G, having a shank adapted to be adjustably secured in the socket E, and the metal body H, bent to fit the frame and stakes, and provided with rigid eyes to slip over the stakes, all combined substantially as shown and described.

**264,138. BENONI COLVIN,** Freeport,

Ill. Rotary Hand-Cultivators. Sep. 12, 1882. Filed July 6, 1882.

Claim. 1. In a hand-cultivator, the combination of a series of cultivating-shovels, means for rotating the same in circles, and means for varying the distance of the shovels from the center of rotation.

2. In a hand-cultivator, the combination of a vertical handle and a series of vertical arms provided with shovels at their lower ends, the handle and arms being connected rigidly by a clamp adapted to allow the variation of the distance of each of the shovel-carrying arms from the handle.

3. In a rotary hand-cultivator, the combination of the handle D, arch A, and spring O, substantially as and for the purpose described.

4. In a hand-cultivator, the combination of a supporting-arch provided with two or more retaining-points, a handle pivoted in said arch, and a series of shovels attached to said handle at its lower end by means adapted to permit the lateral adjustment of said shovels, substantially as and for the purpose described.

5. The combination of the arch A with its

brace B, handle D, spring O, clamp F, G, arms H H, and shovels K K, all substantially as and for the purpose described.

**265,009. WILLIAM BLAKE,** Chester, S. C. Cultivators. Sep. 26, 1882. Filed May 2, 1882.

Claim. A band cultivator consisting of the beam A, having its forward end reduced to form a handle, b, and its rear end provided with a series of mortises, the straight rear tooth B', and the bent teeth B, secured in said mortises, the wheels d, journaled to the rear end of the beam, the laterally projecting handle c, and the stop D, substantially as herein shown and described.

**266,697. WALLACE C. KELLY,**

Hastings, Mich., assignor to himself and Walter W. Kelly, same place. Reversible Barrow Cultivators. Oct. 31, 1882. Filed Aug. 10, 1882.

Claim. The reversible hand cultivator here in described, consisting of the handle frame B, in which is journaled the axle of the wheel A, the curved frame D, carrying a single plow upon one side, adapted to follow the track of the wheel, and cultivators upon the other side, one upon each side of said wheel, the saddle arms C E, sleeved upon the axle connecting with the frame D, and means b, for adjusting the relative positions of frame and handles, all constructed, combined, and operating as set forth.

**266,956. MYRON H. FULLER,**

Phelps, N. Y., assignor of one-half to E. G. Carpenter, same place. Weeding-Machines. Oct. 31, 1882. Filed July 12, 1882.

Claim. In a weeding-machine, the combination of the axle D, having a longitudinal slot, E, the frame A secured thereto, and provided with the slotted cross-bar F, the spring-bar M, carrying the backwardly - curved rake-head M', the beams G, carrying the cutters I, and the adjusting screws and nuts H, the whole arranged to operate substantially in the manner specified.



HANDLES.

| <i>Plate Claim</i> |         | <i>Plate Claim</i> |         | <i>Plate Claim</i> |
|--------------------|---------|--------------------|---------|--------------------|
| Allen, W. B.       | 415 248 | Friberg, A.        | 412 247 | Pope, S. W.        |
| Babcock, W. S.     | 414 248 | Gibbs, L.          | 410 248 | Potter, J. C.      |
| Bigelow, D. F.     | 416 248 | Hacke, F.          | 417 249 | Raftery, J. T.     |
| Bissel, T. M.      | 417 249 | Huff, E. S.        | 412 247 | Watt, G.           |
| Brown, W. P.       | 416 248 | Laughlin, J. L.    | 413 247 | Weaver, W.         |
| Burghardt, J. H.   | 415 248 | Miles, W. A.       | 417 249 | Wiard, E.          |
| Clark, J. M.       | 417 249 | Moore, J. A.       | 411 247 | Wiard, E.          |
| Couch, W. A.       | 414 248 | Morgan, L. B.      | 415 248 | Williams, C.       |
| Finnegan, J.       | 416 248 | Olmsted, S. J.     | 411 247 | Wyche, W. E.       |

## HANDLES.

**42,220. S. J. OLMSTED,** Binghamton, N. Y. Plow Handles. Apr. 5, 1864.

This invention consists in making the curved part of the handle of cast iron or other metal, secured by means of a socket to the lower part of the said handle, and provided with a hole above the socket, through which the reins of the team may be passed and secured within convenient reach of the operator.

Claim. The metallic hand handle for plows and other agricultural implements having a rein hole therein, and constructed substantially as herein recited.

**59,437. JOSEPH A. MOORE,** Louisville, Ky. Plows. Nov. 6, 1866.

A slotted flange is attached to the inside of the mold-board, to which the handle is attached by bolts and nuts.

Claim. The slotted flange, made and described and for the purpose set forth.

**64,464. GEORGE WATT,** Richmond, Va. Plow Handles. May 7, 1867.

The curve of the handle is formed with a cast socket to avoid bending the timber.

Claim. The curved metallic socket A, constructed as described, and employed for the purpose specified.

**79,532. CHARLES WILLIAMS,** Jackson, Miss. Attaching Handles to Mold Boards of Plows. June 30, 1868.

The lugs are cast upon the mold board, and are either cast around wrought-iron rods, which are threaded to receive the nuts, or cast solidly and drilled to receive bolts.

Claim. The lugs *a a*, bolts *d d*, nuts *c c*, and handle *e*, the whole combined, arranged, and operated substantially in the manner herein shown and described, and for the purpose set forth.

**82,934. ANDREW FRIBERG,** Moline, Ill. Plows. Oct. 13, 1868.

The interposed plate supports the attached end of the handle in a position sufficiently removed inward from the landside to avoid friction with the land and the consequent wear.

Claim. The plate C constructed and applied between the landside A and the handle B of the plow, substantially as described.

**85,152. EDWARD WIARD,** Louisville, Ky., assignor to himself and Samuel W. Pope, same place. Plows. Dec. 22, 1868.

The handle is arranged between lugs on the mold board and is held by a bolt which fits in slotted hooks on the mold board.

Claim. The lugs *a a*, with their projecting points in combination with the slotted hook or hooks *b*, the bolt *c*, handle *B*, and mold board *A*, substantially as described, for the purpose specified.

**91,847. E. S. HUFF,** Zanesville, Ohio. Plow-Cultivators. June 20, 1869.

Claim. The employment of the metal plate A, constructed with the bars or projections *c c*, supplied with the pivoted arms *b b*, in combination with the handles of a cultivator, and arranged substantially as and for the purpose set forth.

**102,071. EDWARD WIARD,** Louisville, Ky., assignor to B. F. Avery. Handle-Seats for Plows. Apr. 19, 1870.

Claim. A plow provided with the seat D, having one face fitted closely upon the inner surface of mold-board A, having an outwardly projecting notched flange upon its rear edge to support the corresponding portion of handle C, two cross-flanges to support the inner side of handle C, and a socket *a*, to receive the mold-board end of the cross-brace, all as and for the purpose specified.

**102,860. SAMUEL W. POPE,** Louisville, Ky. Plows. May 10, 1870.

Claim. 1. The plate E, provided with the lug *e* and projections *e' e' e'*, as described, for the purpose set forth.

2. The plate E, handle F, and stretcher-rod G, when combined as described, for the purpose set forth.

**108,671. WILLIAM E. WYCHE,** Brookville, N. C. Plow-Handles. Oct. 25, 1870.

Antedated Oct. 7, 1870.

Claim. The sleeve B, having two sockets at right angles to each other, combined with a hand-piece, C C, and plow-handle A, each relatively constructed, and all arranged to form an improved attachment for plows, as shown and described.

**115,069. JOHN L. LAUGHLIN,** Peru, Ill. Attaching Handles to Plows. May 23, 1871.

Claim. The means employed for attaching a handle, B, to a plow-standard, consisting of the splice-bar C and bolt *c*, constructed and arranged as shown and set forth.

**138,434. JOHN T. RAFTERY,** El Dara, Ill. Plow-Handles. Apr. 29, 1873. Filed Sep. 7, 1872.

The main part of the plow-handle is of wood, the upper end being straight, and extended by means of an adjustable curved plate of iron, which is provided with wood easements for the hands.

Claim. The metallic adjustable slotted handles B, having incasements *c*, in combination with the fixed plow-shanks A and bolts *b*, substantially as and for the purpose specified.

**140,302. JOHN C. POTTER,** St. Helena, Cal. Plows. June 24, 1873. Filed Mar. 29, 1873.

The plow has a hinged handle which can be folded over to one side in order to pass obstructions.

Claim. 1. The rigid handle *h*, in combination with the hinged movable handle *l*, substantially as and for the purpose above described.

2. In combination with a rigid and movable handle, the bracing-rod *O* provided with a rule-joint in the middle, substantially as and for the purpose above described.

**172,394. WM. A. COUCH,** Hannibal, Mo. Plow-Handles. Jan. 18, 1876. Filed Apr. 3, 1875.

The hand-piece of the handle is an open scroll casting, with ears to receive the wood.

Claim. As a new article of manufacture, an open-work socketed plow-handle, formed of strip *a<sup>1</sup>*, bars *a<sup>2</sup>*, and flanges *a<sup>3</sup> a<sup>4</sup>*, all substantially as shown and described.

**174,055. WM. S. BABCOCK,** Plainfield, Conn. Plow and Cultivator Handles. Feb. 29, 1876. Filed Dec. 20, 1875.

Claim. The circular plow-handle, bent and secured as shown, substantially as and for the purpose set forth.

**187,648. W. WEAVER,** Havana, N. Y., assignor of one-half his right to G. S. Weaver, same place. Plow-Handle Tips. Feb. 20, 1877. Filed Aug. 5, 1876.

The construction of the hand portion or tip, made in two parts, secured together by lugs and bolts.

Claim. The hollow section *A*, having lugs *a* *a<sup>1</sup>*, tooth *a<sup>2</sup>* and the flaring lip *A<sup>3</sup>*, in combination with the hollow section *A<sup>1</sup>*, recessed to receive the tooth *a<sup>2</sup>*, and provided with the flaring lip *A<sup>3</sup>*, substantially as described, and for the purpose set forth.

**214,272. WILLIAM B. ALLEN,** Orleans, N. Y. Plows. Apr. 15, 1879. Filed Sep. 17, 1878.

Claim. A mold-board provided on its inner side with an arched brace, the opposite ends of which are secured to or formed solid with the mold-board, said brace constructed with a flat bearing, with an elongated slot formed therein, in combination with a plow-handle, and means for securing the handle to said bearing in an adjustable manner, substantially as set forth.

**214,487. JOHN H. BURGHARDT,** Stockbridge, Mass., assignor to himself and W. A. Miles, Copake Iron Works, N. Y. Plows. Apr. 22, 1879. Filed Nov. 8, 1878.

Claim. 1. In combination with the share and handles, the intermediate metal frame, *B*, substantially as described, pivoted at its lower end to the share, as and for the purpose set forth.

2. In combination with the metal frame *B*, having the pivoted journal and handle recesses, as described, the transverse pin *b<sup>4</sup>* and handles *C*, as set forth.

**226,535. LEWIS B. MORGAN,** West Liberty, W. Va., assignor to John E. Wayt, same place, and William Rice, Jr., West Alexander, Pa., one-third to each. Plow and Cultivator Handles. Apr. 13, 1880. Filed Sep. 5, 1879.

A semicircular ratcheted brace and handles with a spring-catch and hand-lever to allow the handles to be adjusted laterally in the arc of a circle.

Claim. The combination of the handles *C*, cross-bar *D*, spring-catch *F*, the rod and lever *G H*, the latter placed contiguous to the rear end of the handles, and the plow-beam and notched arch *B*, as shown and described.

**236,881. JOHN FINNEGAN,** Ann Arbor, Mich. Plows. Jan. 15, 1881. Filed Nov. 10, 1880.

Claim. The combination, with the mold-board *A*, landside *C*, and handles *F*, of the brace-iron *E*, rigidly secured at its ends to the mold-board and landside, and provided with the slots *e e'*, arm *a*, having an offset, *c*, bearing against the upper edge of the landside, and arm *b*, having its outer face curved to fit the mold-board, and provided at its upper end with the short arm *d*, substantially as described, and for the purpose set forth.

**252,419. DENISON P. BIGELOW,** Albion, Mich., assignor to the Gale Manufacturing Company, same place. Plows. Jan. 17, 1882. Filed July 8, 1881.

Claim. In a plow, and in combination with the handles thereof, pivoted at their lower ends as described, the tail-iron *G*, adjustably secured to the rear end of the beam, and provided with a vertical slot, and curved on its outer surface on the arc of a circle drawn from the handle-pivots, and the index *F*, fastened between the handles and provided with a lateral slot, and having its outer surface curved to correspond with the adjoining surface of the tail-iron substantially as and for the purpose specified.

**252,722. WILLIAM P. BROWN,** Zanesville, Ohio. Plow-Handles. Jan. 24, 1882. Filed Dec. 10, 1881.

Claim. 1. The combination, with the handle *E*, beam *A*, and bolts *C* and *P*, of the brace *B*, having a curved slot in its upper end formed with an intermediate shouldered bend or bearing, substantially as specified.

2. The handle-brace *B*, having at its upper end the curved slot *F*, formed with an intermediate shouldered bend, *G*, a rear extension, *L*, and a forward and downward extension, *N*, substantially as specified.

**259,126. LEWIS GIBBS,** Canton, Ohio, assignor to himself, John R. Bucher, and Henry A. Cavnah. Plows. June 6, 1882. Filed Mar. 3, 1882.

Claim. 1. The upper handle-brace, *a*, of a trough-like shape, with the convex side downward, and formed with openings, *c*, in com-

bination with the handles  $h$   $h'$ , screw-bolts  $b$ , and nuts  $n$ , the bolts having their heads within the brace and being fastened by the nuts at the outer sides of the handles, substantially as described.

**2.** The adjustable braces  $c$   $c'$ , crossing each other, and formed with elongated holes  $e$ , through which they are bolted together, in combination with handles  $h$   $h'$ , substantially as described.

**259,133. FREDRICH HACKE,** De Soto, Mo. Plow-Handles. June 6, 1882. Filed Mar. 28, 1882.

Claim. **1.** The combination, with the parts A and B of a plow-handle, of the perforated standards C, bolted respectively to the said parts, substantially as and for the purpose set forth.

**2.** The combination, with the parts A B of a plow-handle, of the standards C, provided with the flanges E, and the perforations G, and the bolts D F, substantially as and for the purpose set forth.

**260,642. THELUS M. BISSEL,** South Bend, Ind. Plow-Handles. July 4, 1882. Filed Apr. 1, 1882.

Claim. The combination, in a plow, of the angular bracket A, the slot e and groove b, therein, the U-shaped bracket E, the angular

bracket C, for the landside, the slotted portion the grooved portion, and the offset d thereof and plow handles secured to said parts, substantially in the the manner and for the purpose described.

**267,443. WILLIAM A. MILES,** Copake Iron Works, N. Y. Attaching Plow-Handles. Nov. 14, 1882. Filed Oct. 29, 1881.

Claim. **1.** In a plow, the combination of a pivoted socket for receiving the lower ends of the handles with a wedge introduced between the handles and the screw for securing the wedge in place, substantially as set forth.

**2.** The expansion brace, formed of a tube and nut, in combination with the plow-handles and the clip plates at the end of the brace and the tie bolt passing through the handles, substantially as set forth.

**267,837. JAMES M. CLARK,** Lancaster, Pa. Adjustable and Detachable Handles for Plows. Nov. 21, 1882. Filed July 1, 1882.

Claim. The combination, with the handle beam of a plow or other implement, of handle c, having slotted attaching and adjusting plate d, said handle being pivot bolted to the handle beam at e and stay-bolted through slot f as described.





*LANDSIDES.*

| <i>Plate</i>   | <i>Claim</i> | <i>Plate</i>    | <i>Claim</i> | <i>Plate</i>     | <i>Claim</i> |
|----------------|--------------|-----------------|--------------|------------------|--------------|
| Bacon, J.      | 424 260      | Harding, W. E.  | 423 259      | Reese, E.        | 425 260      |
| Benton, J. F.  | 424 260      | Holland, J. J.  | 426 250      | Robarts, J. I.   | 422 259      |
| Benton, J. F.  | 425 260      | Humphrey, D. F. | 422 259      | Rouse, B. C.     | 423 260      |
| Bowen, J. D.   | 423 259      | Koffend, J.     | 424 260      | Schram, A. C.    | 425 260      |
| Burrall, T. D. | 421 259      | Mason, J. R.    | 422 259      | Sprouse, W. T.   | 423 259      |
| Christ, A.     | 421 259      | Omstead, S. J.  | 422 259      | Van Loan, W. W.  | 421 259      |
| Fitzer, J. G.  | 424 260      | Opp, H.         | 425 260      | Williams, S. Jr. | 421 259      |

## LANDSIDES.

**3,320. THOMAS D. BURRALL,** Geneva, N. Y. Plows. Oct. 28, 1843.

Claim. 1. The inclined shell wheel constructed substantially as herein described, combined with the plow in the manner and for the purposes set forth.

2. The guard or scraper in combination with the shell wheel as described.

3. The mode of connecting the beam, landside and handles as described in plows and other implements.

**6,724. ABRAHAM CHRIST,** Unity, Ohio. Landsides for Plows. Sep. 18, 1849.

Claim. Diminishing the bearing of the landside upon the bottom of the furrow, and thus lessening its friction, by inclining at least one-half of its lower edge on the rear end slightly upward, but not so abruptly as to prevent it from resting throughout its entire length against the land side of the furrow, to sustain the pressure of the furrow-slice against the mold-board, and maintain an equal balance of the plow.

**19,391. W. W. VAN LOAN,** Catskill, N. Y. Plows. Feb. 16, 1858.

Claim. The attachment of one or more horizontal cutters to the land-side of the plow, whereby the land is cut horizontally below the surface, so that it may be turned over by the mold-board during the succeeding cut with greater ease, substantially as set forth.

**23,211. SOLOMON WILLIAMS, Jr.,** Hume, N. Y. Plows. Mar. 8, 1859.

The object of this invention is to render the draft of the plow as light as possible, by diminishing the friction attending the passage of the land side D and mold-board through the soil, and also by the same means regulating the plow, so that it will form furrows of greater or less depth, as may be required.

Claim. The arrangement of the adjustable wheel G with the land side D of the plow, substantially as shown and described, for the purposes set forth.

**34,371. J. R. MASON,** Elgin, Ill. Plows. Feb. 11, 1862.

The object of this invention is so to connect the main brace with the mold-board and landside (the latter being provided with a rotary cutter) as to insure strength to, and support, the main portion of the plow at a point where the greatest strain is imposed.

Claim. Constructing the main brace f, with a land-side termination d, and the cup v, and the ream socket vv, in combination with the landside B, cutter-plate C, and its base-enlarged axle g, the whole arranged and operating in the manner and for the purpose set forth.

**37,939. SAMUEL J. OLMSTEAD,** Binghamton, N. Y., assignor to himself, Warring S. Weed, and D. S. Ayres, same place. Plows. Mar. 17, 1863.

A large part of the landside of the plow is occupied by a wheel in line with the landside, and extends below the sole, so as to revolve and diminish the friction. The wheel is supported by a projection cast upon the mold-board.

Claim. 1. The attachment of a wheel upon the landside, forming a large part thereof, and projecting below the bottom of the plow, while its exterior or outer surface is in line with the landside, for the purpose of removing the friction of the plow while at work, as set forth.

2. Making the supporting arm e of the wheel a part of the mold-board casting.

**46,362. D. F. HUMPHREY,** Saline, Mich. Plows. Feb. 14, 1865.

This invention consists in an adjustable landside pivoted at its forward end with a hook in the landside proper, and adjustable at its rear end by a slot, notched washer, nut, and screw-bolt.

Claim. The movable or adjustable landside C, provided at or near its forward end with a hook which engages with a hole in the landside A, and fixed adjustably in a vertical slot in the latter by means of the notches g, the notched washer e, and the screw-bolt and nut cf, as described and represented.

**59,078. J. L. ROBARTS,** Brunswick, Ga. Plows. Oct. 23, 1866.

The landside may be attached to the standard by either of its arms.

Claim. The detachable and reversible V-shaped landside E, secured to the stock C, substantially as shown and described.

**66,939. JOHN D. BOWEN,** Roseburg, Oregon. Plows. July 23, 1867.

The plate forms a cutter\* and a removable land-side.

Claim. A cutter and bar sheath cut in one piece out of a sheet of steel, and attached to the bar of the land-side so as to be removable at will.

**67,756. WILLIAM E. HARDING,** Bowling Green, Mo. Plows. Aug. 13, 1867.

The wheel rotating at the heel of the plow is used to lighten the draft by instituting a rolling in place of a sliding motion.

Claim. The wheel c when combined with a plow A B in the manner and for the purpose set forth.

**68,253. WILLIAM T. SPROUSE,** Chandlerville, Ill. Plows. Aug. 27, 1867. The landside is curved to the shape of the

front edge of the mold board, and then descends to bear against the ground near the heel of the plow, leaving an open arched space, and lessening the frictional surface.

Claim. The landside *b*, when constructed in the manner herein shown and described.

**68,313. BURDET C. ROUSE,** Morris, Ill. Plows. Aug. 27, 1867.

The round rotary steel cutter is attached to the share bar and moves horizontally by the forward motion of the plow.

Claim. The rotary landside cutter, in combination with the share at its point *B*, and arranged in the manner and for the purpose above set forth.

**77,242. JEROME BACON,** Medina, Wis. Plow Land Sides. Apr. 28, 1868.

The land side has an adjustable shoe which is secured by rabbit, lugs and bolts, and is removable for repair or renewal as it wears.

Claim. 1. The ears *C*, attached to the shoe *B*, by which the shoe is secured to the land side, thus relieving the rear of the land side from all weight and wear, substantially as described.

2. The slots *d*, in the ears *C*, by which the shoe is made adjustable, substantially as and for the purpose set forth.

3. The adjustable shoe *B*, applied to a land side, *A*, in the manner described, and provided with ears *C*, having slots *d*, adapted to fit over bolts *e*, fixed in the land side *A*, substantially as and for the purpose herein set forth.

**78,293. JOHN KOFFEND,** Appleton, Wis. Plows. May 26, 1868.

By raising or lowering the heel of the adjustable landside the direction of the point is slightly changed, thereby causing the plow to work at a greater or less depth.

Claim. The combination of a pivoted, adjustable, auxiliary landside, with the ordinary landside of a plow, whether said auxiliary landside be placed upon the outer or inner side of said ordinary landside, substantially as herein shown and described, and for the purpose set forth.

**80,859. JOHN G. FETZER,** Brunswick, assignor to Fetzer and Woodson, St. Louis, Mo. Plows. Aug. 11, 1868.

The landside has a triangular attachment by means of which the said landside, the mold-board and shares are coupled together.

Claim. The landside *D*, when constructed with the assembling bars *d* and *d'*, the whole being arranged as herein shown and described.

**87,533. JAMES F. BENTON,** Penn Yan, N. Y. Plows. Mar. 9, 1869.

Claim. The grooved or channeled landside *B*, in combination with the mold-board *C*, when made and arranged as specified, and used in connection with the beam *A*, substan-

tially as and for the purpose herein set forth.

**135,363. EDWIN REESE,** Eutaw, Ala., assignor to Charlotte M. Reese, same place. Plows. Jan. 28, 1873.

The landside is hinged at its point of union with the share, so that its heel can have an angular vertical adjustment. This adjustment is affected by an adjusting-brace pivoted to the heel of the land-side, and secured to the posterior portion of the standard.

Claim. A bottom-concaved land-side, having the rear section *D* jointed to a fixed section *E*, for the purpose of giving angular adjustment to the rear section of land-side as the bottom of share wears, and thus preserve the cutting-edge of said share always at or about the true angle.

**142,074. JAMES F. BENTON,** Penn Yan, N. Y. Plows. Aug. 26, 1873. Filed Dec. 5, 1872.

A common plow is provided with a supplemental sole, which is pivoted in a slot in the rear end of the land-side and adjusted at the forward end by an oblique slot to govern the pitch of the plow.

Claim. The adjustable sole *B*, when pivoted to the rear end of the land-side and secured by the slotted stud, as described.

**190,779. H. OPP,** Belleville, Ill. Plows. May 16, 1877. Filed Apr. 12, 1877.

Claim. The land-side *m*, having the cutting-edge *n* flange *r*, shoulder *s*, slot *t*, and point *u*, and having its rear end supported upon the wheel *x*, substantially as set forth.

**222,313. ADELBERT C. SCHRAM,** Flint, Mich. Plows. Dec. 2, 1879. Filed Sep. 2, 1879.

A cone-shaped roller for a land-side, its apex or top adjustable laterally and forward and back.

Claim. 1. In a plow, a land-side formed of a single conical roller supported with its apex upward, and inclined to present a vertical face outward, substantially as described and shown.

2. The conical roller *E*, forming the landside of the plow, and mounted in devices whereby its inclination in the line of draft can be adjusted to adapt it for plowing at different depths, as described and shown.

3. The conical vertical roller landside *E*, mounted in a frame and capable of lateral and longitudinal adjustment of its inclination, substantially as shown and described.

**249,727. JOSEPH J. HOLLAND,** Macy, Tex., assignor of one-half to Herbert B. Taliaferro, same place. Plows. Nov. 15, 1881. Filed June 11, 1881.

Claim. 1. The reversible landside for plow herein shown and described, composed of a flat plate, *F*, cut off straight at one end, having its parallel top and bottom edges turned in re-

verse directions to form the parallel top and bottom flanges,  $a$  and  $b$ , and having a point,  $c$ , at its forward end, midway between said flanges, substantially as and for the purpose herein shown and set forth.

2. In a plow, the combination of the saddle

$C'$ , recessed at  $C^2$ , and the reversible landside  $F$ , having parallel top and bottom flanges,  $a$  and  $b$ , turned in reverse directions, and terminating at one end in the point  $c$ , midway between said flanges, substantially as and for the purpose herein shown and described.





| <i>Plate Claim</i>          | <i>Plate Claim</i>                     | <i>Plate Claim</i>             |
|-----------------------------|--|--------------------------------|
| Adams, S.                   | 449 275 Gilbert, H.                    | Miller, J. C. and Clemens,     |
| Adair, J.                   | 441 275 Goodman, W. P.                 | S. A. and G. H.                |
| Atkinson, W. B.             | 443 276 Goodman, W. P.                 | 439 273                        |
| Bagley, H.                  | 444 276 Grabbe, C. G.                  | Miller, A.                     |
| Baker, H. F.                | 435 273 Green, L.                      | 437 274                        |
| Baker, H. F.                | 442 275 Griffith, G. L. and Carpenter, | Miller, A.                     |
| Bates, M.                   | 431 271 J. H.                          | 437 277                        |
| " " (A. L.)                 | 431 271 Hamilton, E. M. and Earl,      | Morrison, J.                   |
| Ballard, H. H. and Mc-      | C. N.                                  | Morton, E. H.                  |
| Clure, H.                   | 445 276 Handel, W.                     | Neville, G. W.                 |
| Barnett, J. R.              | 449 278 Hammer, J. A. and Gor-         | Nevison, J. and E.             |
| Bowers, A. Griggs J. H.     | don, J. P.                             | 439 271                        |
| and Wilson, J.              | 438 274 Hammond, A.                    | Panish, E. and W. Jr.          |
| Briggs, B. B.               | 439 273 Hammond, A.                    | Pratt, I. C.                   |
| " " " (A. L.)               | 436 273 Hanon, J. Jr.                  | Reynolds, S. H.                |
| Bucklin, M.                 | 433 272 Hawkins, A. B. and Pun-        | Robbins, D. F. and Mor-        |
| Campbell, J. J.             | 451 270 tenney, J.                     | rison, S.                      |
| Carrington, J.              | 432 271 Huckleby, F. E.                | 432 272                        |
| Case, J.                    | 430 271 Hobson, L.                     | Roland, H. W. and              |
| Chambedlin, G.              | 448 278 Hofflein, R.                   | Fordis, E.                     |
| Clemens, S. A.              | 447 277 Howell, M. A. Jr.              | Routt, A. P.                   |
| Cole, T. G.                 | 452 270 Hudson, L.                     | Scott, J.                      |
| Cole, J. and Wall, A. L. O. | 429 271 Hughes, A. S.                  | Smith, R. P. and Gates,        |
| Conell, E.                  | 429 271 Hussey, R. and Thornburg,      | J. R.                          |
| Cox, T. S.                  | 434 272 U. Sr.                         | 440 277                        |
| Crandall, C. U., J. H. and  | Jerome H. R.                           | Smith, S. H. and Snyder, W. W. |
| Hawkins, A.                 | 435 273 Jones, S. F.                   | 452 279                        |
| Creamer, J. and Ricards,    | Jones S. F.                            | Sparkes, J. H.                 |
| L. W.                       | 432 273 Kam, A. M.                     | 453 280                        |
| Creamer, J.                 | 448 272 Kazari, L.                     | Stafford, C. W.                |
| Critchett, M. H.            | 450 278 Klune, C. B.                   | 442 275                        |
| Critchett, M. H.            | 451 279 Lane, J.                       | Stripe, L.                     |
| Defenbaugh, A.              | 439 271 Lee, J.                        | Sturdevant, O.                 |
| Divellass, H. T. and Bras-  | Lucas, D. T.                           | 444 276                        |
| field, J. S.                | 449 278 Marquess A., E., C., and       | Swift, A.                      |
| Elmer, A.                   | 433 272 Emerson, C.                    | 437 274                        |
| Elmer, A.                   | 434 272 Mettler, J. L.                 | Thorn, E.                      |
| Edward, J. H.               | 444 270 Mettler, W. J. and J. L.       | Voorhis, O. W., M. S.,         |
| " " " (R.)                  | 444 276 Mettler, W. J. and J. L.       | S. H. and Voorhis, W. M.       |
| Fudge, J. M., Holmes, F.    | Mettler, W. J. and J. L.               | 448 278                        |
| M. and McDonald, S.         | 454 280 Miller, A.                     | Wall, A. L. O., Roberts, G.    |
|                             |  | and Carter, M. S.              |
|                             |  | 441 275                        |
|                             |  | Wall, A. L. O., Roberts, G.    |
|                             |  | and Carter, M. S.              |
|                             |  | 443 276                        |
|                             |  | Watson, W. T.                  |
|                             |  | 455 281                        |
|                             |  | Watson, D.                     |
|                             |  | 439 274                        |
|                             |  | Watson, A.                     |
|                             |  | 431 271                        |
|                             |  | Watson, A.                     |
|                             |  | 433 272                        |
|                             |  | Watson, A.                     |
|                             |  | 449 275                        |
|                             |  | Watson, A.                     |
|                             |  | 438 274                        |

## MOLE.

**3,456. EZRA CORNELL**, Ithaca, N. Y.  
Mole Plows. Feb. 28, 1844.

Claim. A furrow or trench cutter in combination with a curved channel or groove of one or more divisions (for laying one or more pipes at the same time,) as herein described, and these I claim in combination with the drum as described for the purpose of depositing pipes at any desired depth, the whole being constructed and operating substantially as set forth.

**14,287. A. MARQUISS, E. MARQUISS and C. MAQUISS**, Monticello, and **C. EMERSON**, Decatur, Ill. Mole Plows. Feb. 19, 1856.

Claim 1. The peculiar shape of a mole A, which enables its forward movement to form a subterranean perforation whose top and sides will be smoothly and densely compressed and whose bottom will be left almost entirely uncomressed, substantially in the manner and for the purpose herein set forth.

2. Giving the tail *a* of the mole such a shape and position that it will serve to close up the slit cut by the mole-shank B in forming a perforation, and also serve to lead the mole upward to the surface of the ground as soon as the beam E is allowed to turn on its axis, substantially as herein set forth.

**16,046. J. COLE and A. L. O. WALL**, Pittsburgh, Pa. Mole Plows. Nov. 11, 1856.

Claim. 1. The combination of the brace colter E, and rotating colter F, with the mole, substantially as set forth.

2. Constructing the mole in sections, flexibly connected together.

3. Constructing the mole with a fin or knife on its sole, to make a deep furrow in the bottom of the drain to facilitate the entrance of the water from the adjacent soil.

**21,491. ADAM DEFENBAUGH**, Walnut Run, Ohio. Mole Plows. Sep. 14, 1858.

Claim. 1. So hanging the beam D, wheels C C, and underground plow H to each other as that the conductor of the machine may, at any time, without seeing the plow, raise and lower it so that the ditch shall have a regular dissent, regardless of the undulations of the ground underneath which it is formed, and over which the plow passes.

2. In combination with the underground plow, the scoring wheel *m*, for forming a secondary trench in the bottom of the ditch, for the purpose set forth, and the friction rollers for relieving it, as represented.

**22,194. JAMES NEVISON and EDWARD NEVISON**, Morgan, Ohio. Mole Plows. Nov. 30, 1858.

Claim. The adjustable weighted roller O, in combination with the plow and drags as set

forth, and operating conjointly for the purpose described.

**22,522. DANIEL WATSON**, Newport, Ohio. Drain Plows. Jan. 4, 1859.

Claim. Combining with the crab or anchor H, and the plow *a*, traveling capstans J, which are connected together by a rope or chain, as herein represented, for the purpose of working said plow as described.

**22,701. JARVIS CASE**, Bloomington, Ill. Mole Plows. Jan. 25, 1859.

Claim. 1. So suspending the mole to the beam or colter G as that it cannot go vertically beyond a given depth, whilst it may move laterally, substantially as described.

2. Extending the nose *r* of the mole into the rear of the colter, so that it cannot at any time run out of the line or cut of said colter at its point, substantially as described.

**22,906. AUGUSTUS WATSON**, Walnut Run, Ohio. Drain Plows. Feb. 8, 1859.

Claim. So hanging a colter C, to which a mole is attached as that by revolving a key, or its equivalent, that restrains said colter, and by advancing the plow, said colter and mole will run out of the ground, substantially as described and represented.

**22,928. MOSES BALES**, Big Plain, Ohio. Mole Plows. Feb. 15, 1859.

Claim. The adjustable mole plows D d d<sup>1</sup> g<sup>1</sup> e, upon a cutting shaft A, arranged and operating substantially as and for the purposes set forth.

**248. MOSES BALES**, Big Plain, Ohio. A. I. To original Letters Patent No. 22,928. Mole Plows.

Claim. The employment of the cap *d* in combination with the mole B, constructed and arranged substantially as and for the purposes set forth.

**23,334. W. P. GOOLMAN**, Dublin, Ind., assignor to himself, Samuel B. Morris, and W. Hollingsworth, of Dublin. Mole Plows. Mar. 22, 1859.

Claim. The arrangement substantially as set forth, of devices for producing or preventing lateral curves in a drain by adjusting the presentation of the mole independently of the point of draft.

**23,348. JOEL CARRINGTON**, Avoca, N. Y. Mole Plows. Mar. 29, 1859.

Claim. The combination and arrangement of a replaceable pointed colter, with a continuous plate or solid standard carrying the mole, and a brace in the rear, connecting the said mole to the beam, and also to the handles, in the manner substantially as described.

**23,452. JACOB CREAMER and THOMAS W. RICARDS,** London, Ohio. Mole Plows. Apr. 5, 1859.

This arrangement relates to the arrangement of an adjustable beam upon a sliding shoe, in such a manner that the mole connected therewith may be adjusted to the depth required.

Claim. The arrangement of the beam B, screw H, wheel d, and shaft S, upon the sliding shoe A a b b, constructed and operating substantially as described.

**23,609. D. F. ROBBINS and SIMEON MORRISON,** DeWitt, Ill. Mole Plows. Apr. 12, 1859.

Claim. 1. Making the beam of a mole plow in two parts, united by a horizontal joint, to give it lateral adjustment, substantially as described.

2. Connecting the drag (which supports, and upon which the point of the beam is made adjustable, vertically,) to the rear portion of the beam, by a hinged joint or connection, so that the raising or lowering of the point of the plow beam shall not affect the drag, substantially as described.

**23,745. H. W. ROLAND and E. FORBES,** Newport, Ohio, assignors to themselves and Washington Witherow, same place. Mole Plows. Apr. 19, 1859.

Claim. Pivoting the carriage A to the beam B, near its forward end, as represented, and in combination therewith the curved colter i, pivoted to the beam B, and friction rest c, arranged and operating in the manner set forth.

**24,928. MOSES BUCLIN,** Grafton, N. H. Draining Machines. Aug. 2, 1859.

Claim. 1. The arrangement of the platform E, with the cutter blade F, and plowshare G, for the purpose of cutting underground drains, substantially in the manner specified.

2. Arranging the blade E, with a sloping cutting edge d, so that the same may readily pass obstructions which may come in its way, substantially as described.

3. The arrangement and combination of the platform E, the cutter blade F, and the plowshare G, with the adjustable bars D and wheels B, to operate substantially in the manner and for the purpose described.

**24,969. AUGUSTUS WATSON,** Walnut Run, Ohio. Mole Plows. Aug. 2, 1859.

Claim. 1. Suspending the colter C to the lever D and guiding it between rollers, so that it may be raised or lowered independently of the beam or frame of the plow, substantially in the manner and for the purpose described.

2. Making one or both of the beam plates G H adjustable, for the purpose of adjusting the position of the colter, so as to give it the proper tip or inclination, substantially in the manner and for the purpose described.

3. In combination with the beam plates and the colter C, the grooved guide rollers f g, for the purpose of guiding the colter in its

vertical motion, and preventing any side or twisting motion of the same, substantially as described.

4. In connection with the colter and mole, the pivoted tongue p, substantially in the manner and for the purpose described.

5. In combination with the colter and the mole, the link P, whose ends are secured by a screw sleeve, for the purpose described.

**25,027. ADAM MILLER,** Mount Pleasant, Iowa. Draining Machines. Aug. 9, 1859.

Claim. The combination and arrangement of the mole with the drain protectors, as described, for the purpose of expeditiously and economically giving protection to the upper part of the ditch, and of disengaging the protectors from the mole plow with facility after they are laid.

**25,079. ASAHEL ELMER,** Shabbona Grove, Ill. assignor to Nathan Elmer and R. M. Prichard, same place. Mole Plows. Aug. 9, 1859.

Claim. So combining with the truck wheels or ground supports a capstan and crab, and a flexible rigging, as that the power of the team that draws the apparatus and works the capstan may be used for setting or anchoring the said crab and capstan, as well as to raise it up, reload it on the truck, and transport it from place to place, substantially as described.

**25,098. THOMAS S. COX,** Lafayette, Ind. Mole Plows. Aug. 16, 1859.

Claim. The peculiar shape of the mole C. By the forward movement of the mole C the earth is carried from the bottom of the ditch by means of the terraducts B, from the point of the mole D, to the rear of the shank A, and pressed more densely by the increased earth coming in contact with the convex and of the mole C in rear of the shank A, in such a manner as to make a better arch, and more durable than any heretofore made, leaving the bottom of the ditch almost entirely uncom-pressed; hence I do not claim anything except the invention of the terraducts B, ending in the convex on the top of the mole C.

**25,105. ASAHEL ELMER,** Shabbona Grove, Ill. assignor to Nathan Elmer and Reuben M. Prichard, same place. Mole Plows. Aug. 16, 1859.

Claim. 1. In combination with the adjustable block B on the plow beam, the scoring or levelling plow D in advance of it, substantially as and for the purpose described.

2. In combination with the plow beam and colter, the swinging weighted crane or lever for preventing the careening of the plow or for recovering its proper position after it has careened, substantially as described.

3. The combination of a forked colter, for cutting a wedge shaped or tapering slice over the colter gash, with a pressing or driving dev-

ice for forcing down said shoe, and thus packing the colter gash as described.

**4.** A mole or former, made of a series of conical shaped sections, which increase in size as they recede from the colter, and which are so linked together as that they may move in a horizontal plane, but be comparatively rigid in a vertical plane, substantially as described and represented, and for the purpose set forth.

**5.** In combination with the mole L, the scorer or shoe m on its rear section or end, said scorer forming a groove or channel in the bottom of the finished drain for admitting the water into it, the sides of the drain being so closely packed as to prevent the water from entering there, said scorer being constructed and arranged as represented.

**25,114. A. HAMMOND,** Jacksonville, Ill.  
Mole Plows. Aug. 16, 1859.

Claim. The shoe E, provided with a knife N, and projection L, when the same are arranged and operate in the manner and for the purposes herein set forth.

**25,121. H. R. JEROME,** Monroeville, Ohio. Mole Plows. Aug. 16, 1859.

Claim. **1.** The arrangement of a beam, carrying a mole plow, with the front and rear standards of the front and rear propelling wheels, and with the adjusting device, substantially as and for the purposes set forth.

**2.** Providing the colter with a series of notches, and arranging the draft chain in one or other of said notches, and thus having the draft applied directly to the colter, substantially as and for the purposes set forth.

**3.** The combination of a colter which is elliptical in form, in its transverse section, with a mold board which is conical at its front and rear ends, substantially as and for the purposes set forth.

**25,127. JOEL LEE,** Galesburgh, Ill.  
Mole Plows. Aug. 16, 1859.

Claim. **1.** The two swords fitting closely together, the front one attached to the mole near the forward point, the rear sword pivoted near the rear point of the mold.

**2.** The lever in combination with the swords for operating or adjusting the front sword and the mold.

**25,178. CYPRIAN U. CRANDALL,  
- JAMES H. CRANDALL, and HOZA  
A. HAWKINS,** Cameron, Ill. Mole  
Plows. Aug. 23, 1859.

Claim. The combination of the opening or ditching piece A G with the standard F and the peculiarly formed hinged follower or former, constructed and operating in the manner as and for the purposes set forth.

**25,334. IRIS HOBSON,** Stont's Grove, Ill. Mole Plows. Sep. 6, 1859.

Claim. The combination of a ditching plow beam, having a horizontal joint forward of the mole and colter, with a rod arranged over the

top of said joint, and with a horizontal adjusting and stop plate, substantially as set forth.

**25,618. HENRY F. BAKER,** Centre-  
ville, Ind. Mole Plows. Oct. 4, 1859.

Claim. **1.** The arrangement and combination of the screw E, key F, knife C, share G, and revolving packer H, as and for the purpose shown and described.

**2.** The employment of a revolving mole or packer H, substantially as and for the purpose shown and described.

**25,624. B. B. BRIGGS,** Sharon, Ohio.  
Apparatus for Laying Drain Tile. Oct. 4,  
1859.

Claim. The described clutches, consisting of the block or body and the fingers H H<sup>1</sup> H<sup>2</sup> and F F<sup>1</sup>, constructed and operating as set forth, in combination with the rope C, or its equivalent, and hook B, when these several parts are arranged and operated substantially as specified.

**284. B. B. BRIGGS,** Sharon, Ohio. A.  
I. to original Letters Patent No. 25,624.  
Mole Plows.

Claim. The herein described ball B, the double acting clutches or fingers F F, with its notched slide g, and lock attachment H, the mole attachment as in Fig. 2, when used in combination with the rope R, or its equivalent.

**25,649. RAMETH HUSSEY and  
URIAH THORNBURGH, Sr.,** Walnut  
Run, Ohio. Mole Plows. Oct. 4, 1859.

Claim. **1.** Suspending the plow beam that carries the mole to the plow frame by means of ropes or chains, connecting its ends to the capstan, in combination with suitable catches for holding it at any adjusted height thereon, the whole being arranged in the manner and for the purpose set forth and explained.

**2.** In combination with the rotary mole, suspending the plow beam by both its ends to ropes or chains which connect with a common capstan on the plow frame, in combination with racks and pawls for holding said beam when adjusted, the whole being arranged for the purpose and substantially in the manner stated.

**25,703. JAMES C. MILLER,** Irwin,  
Ohio. **STILLMAN A. CLEMENS,**  
Rockford, Ill., and **GILBERT H. CLEM-  
ENS,** Urbana, Ohio. Excavators. Oct. 4,  
1859.

Claim. **1.** The method of making covered field drains by lining the inside with hydraulic lime, mortar, or other suitable material.

**2.** A conducting tube connected with a colter.

**3.** A forcing bar, with valve pistons attached, and working in a conducting tube.

**4.** A follower of less transverse dimensions than the mole to which it is attached, all substantially as described and for the specified purposes.

**25,845. ADAM MILLER,** Mount Pleasant, Iowa. Mole Plows. Oct. 18, 1856.

Claim. The employment of the rod H, in combination with the colter B, provided with staples  $\alpha\alpha\beta\beta$ , and the mole J, provided with the hooks  $m\bar{m}$  and  $s\bar{s}$ , substantially as and for the purposes specified.

**25,846. JOHN MORRISON,** De Witt, Ill. Mole Plows. Oct. 18, 1859.

This invention consists in a novel means employed for varying the position of the line of draft relatively with the beam and mole, whereby the implement may be guided or moved by the draft alone.

Claim. The draft chain G, bar F, loops H H, and the adjusting screw rods J J, or their equivalents, combined, arranged, and applied to the plow, substantially as and for the purpose set forth.

**25,855. ELIJAH THORN,** Selma, Ohio. Mole Plows. Oct. 18, 1859.

Claim. The arrangement of the frame F, as constructed with the boxes  $a\bar{a}$ , which are attached to the rear of the frame A, and with the axle I and wheels J J, the several parts being connected together and used, not only for elevating the machine, but for guiding its rear and changing its position, substantially as set forth.

**25,902. SAMUEL F. JONES,** St Paul, Ind. Mole Plows. Oct. 25, 1859.

Claim. 1. The employment of the ball  $a$ , not generally, but when said ball is secured in such a manner, upon the top of the rear of the mole, that it will revolve when the mole is in motion for the purpose of arching the top of the drain and closing an opening left by the colter, substantially as and for the purpose set forth.

2. The combination of the nose E, mole D, ball  $a$ , rod  $d$ , and wheel F, when the same are used for the purpose of forming and arching the drain and closing the opening of the colter, substantially as and for the purpose set forth.

**25,988. GEORGE WHITCOMB,** Springfield, Ohio. Mole Plows. Nov. 1, 1859.

Claim. The construction of a flexible mole, by the combination of sections which are not attached to each other, but by being held in place by the chain J, or its equivalent, as set forth.

**26,082. AARON BOWERS, JACOB H. GRIGGS, and JOHN WILSON,** Monmouth, Ill. Mole Plows. Nov. 15, 1859.

Claim. The combination of the peculiarly constructed mole A, with the scrapers  $a\bar{a}$  and presser D, arranged and operating in relation to each other, as and for the purpose set forth.

**26,355. F. E. HINCKLEY,** Galesborough, Ill. Mole Plows. Dec. 6, 1859.

Claim. 1. The combination of the clearer or hanging colter F and the rotating colter G,

constructed and arranged as described for joint operation.

2. Constructing the sword M of the mole plow with a hole or bore N through it, of sufficient size and suitable shape to admit at the same time a rod of metal large enough to raise and lower the point of the mole, and also to admit the air to pass free into the drain through the sword and mold, as described.

3. Expanding and contracting the mole of a mole plow, substantially as and for the purpose described, or by any other mechanical means.

4. Constructing the mole of a mole plow in sections consisting of two sides and a top, hinged to a head block and operated by a wedge, as described.

5. Two revolving cutters, with plain outsides and conoidal insides, which may be placed upon a common axle and adjusted to the beam in such a manner as to be forced to cut into the ground and press the earth laterally into the sword cut and firmly close it up, substantially as described.

**26,426. WILLIAM P. GOOLMAN,**

Dublin, Ind., assignor to himself and Samuel B. Morris, Wayne county, Ind. Mole Plows. Dec. 13, 1859.

Claim. 1. The lever F, rigidly attached to a pivoted mole R, in the described combination with the rack F, the whole being constructed and arranged and operating substantially as and for the purposes set forth.

2. The cam D, in the described combination with the colter Q, and adjustable pivot mole R, operating substantially as and for the purpose set forth.

**26,708. IRA C. PRATT,** Morton, Ill. Mole Plows. Jan. 3, 1860.

Claim. 1. Pivoting the mole point on the adjustable cutter D, for allowing lateral motion in said point and the mole attached thereto, substantially as described.

2. The screw Z, or its equivalent, in combination with the mole I K K<sup>1</sup>, for securing the pipe in such a manner that it may be drawn within the perforation made by the mole I, substantially as described.

**26,771. JOHN LANE,** Lockport, Ill. Mole Plows. Jan. 10, 1860.

Claim. The combination, with the peculiarly constructed mole A A<sup>1</sup>, of the shoulders  $c\bar{c}$ , which extend from the base of the mole slope backward as they rise, and terminate at a point about midway between the back of the stem or colter and the rear end of the mole, substantially in the manner and for the purpose set forth.

**27,233. ELIAS PARISH and WATSON PARISH, Jr.,** Galesborough, Ill. Mole Plows. Feb. 21, 1860.

Claim. 1. The combination of the grooved hinged piece B with the colter C and mole

part A, arranged and operating substantially as set forth.

2. The combination of the hinged plane E, roll F, hinged bearings  $h\ h$ , and scrapers  $f\ f$ , with the rear end of the draft beam D, substantially as set forth.

**27,283. SAMUEL ADAMS,** Toulon, Ill. Mole Plows. Feb. 28, 1860.

Claim. The construction of the mole plow described, whereby the earth in the groove at the base of the drain is excavated and conveyed to the sides or top of the drain, substantially as and for the purposes set forth.

**27,285. GEORGE L. GRIFFIN and J. H. CARPER,** Dallas City, Ill. Mole Plows. Feb. 28, 1860.

Claim. Constructing the sword with an advancing and receding angle which converge in a point in advance of the point of a mole, and directly above it, in combination with the said mole, in the manner and for the purposes fully described.

**27,324. AUGUSTUS WATSON,** Lou- don, Ohio. Mole Plows. Feb. 28, 1860.

Claim. In combination with the mole for forming an underground drain, a tube for conveying cement or other plastic lining material down to the drain, in such a manner that it may be spread by a trowling mole upon such parts of the drain as may be desired, substantially as described.

**27,604. A. L. O. WALL, GEORGE ROBERTS, and MILO S. CARTER,** Decatur, Ill. Mole Plows. Mar. 20, 1860.

Claim. 1. The combination of the crank axles B B<sup>1</sup>, link rods G, travelling plate F, and screwed spindle C, substantially as described, for the purposes set forth.

2. Supporting the front axle in an adjustable bearing, when arranged and operating substantially as described, for the purpose set forth.

**27,606. JAMES ADAIR,** Mendota, Ill. Mole Plows. Mar. 27, 1860.

Claim. The combination of two extensions above claimed, and a hinge-like connection whereby the colter and mole are flexible upon each other horizontally, independently of one another, and immovable upon each other perpendicularly, as and for the purposes set forth.

**27,630. JESSE HANON, JR.,** Taylors- ville, Ill. Drain Plows. Mar. 27, 1860.

Claim. The combination and arrangement of the rod E, colter C, and slides G G<sup>1</sup>, with the beam A and rod B, substantially as and for the purpose specified.

**27,751. A. L. O. WALL, GEORGE ROBERTS, and MILO S. CARTER,** Decatur, Ill. Mole Plows. Apr. 3, 1860.

As the colter advances through the soil it draws the mole after it, and leaves a slit behind it extending from the bottom of the drain to

the surface. The mole crowds the loose earth away from its path, and compacts it against the sides of the perforation, which it makes during its progress.

Claim. The avoid-shaped mole, in combination with the scooping flanges, substantially as described, for the purposes set forth.

**27,796. A. HAMMOND,** Jacksonville, Ill. Plows. Apr. 10, 1860.

Claim. The combination, with the standard D, of the movable plate J, adjusting set screw L, and friction rollers, G G, arranged as set forth, so as to regulate the depth for forming the drain, and at the same time to facilitate the removal of the shoe from the ground.

**28,050. HENRY F. BAKER,** Centre- ville, Ind. Mole Plows. May 1, 1860.

Claim. The employment of the slides D D, constructed as described, the rear slide being provided with a shoulder  $\alpha$ , when the same are used in connection with the mole B, for the purpose of drawing the tiles E E into the drain, substantially as specified.

**28,667. A. B. HAWKINS and JOHN PUNTEENNEY,** Cameron, Ill. Mole Plows. June 12, 1860.

The mole is made in the form of a sharp tapering wedge, the lower edge  $\alpha$  being in advance of the upper edge  $\alpha^1$ .

Claim. As a new article of manufacture, a mole for draining machines constructed in the form and in the manner as above set forth.

**29,201. C. W. STAFFORD,** Burling- ton, Iowa. Mole Plows. July 17, 1860.

This improvement consists in a novel mode of supporting, bracing, and operating the mole tooth, with its attachments, for the purpose of regulating its depth below the surface of the ground, and to run it into or out of the ground at pleasure.

Claim. The adjustable saddle N, in combination with the mole tooth and its colter I, arranged and operating in the manner and for the purpose set forth.

**29,269. ISAIAH HODGSON,** New Michigan, Ill. Mole Plows. July 24, 1860.

Claim. The combination of the scraper J and shaft e, with the revolving mole G and colter C, as and for the purpose shown and described.

**29,285. A. M. KARR,** Mount Pleasant, Iowa. Mole Plows. July 24, 1860.

Claim. 1. The combination, with the mole B, of the inclined side pins c c, bottom groove c, and margin c<sup>1</sup>, top groove d<sup>1</sup>, and margins d, and rolling heel E, arranged in relation to each other as shown and described.

2. The combination of the closing scoop C, with the colter B<sup>1</sup>, and the scoop mole D, constructed and arranged in relation to each other as and for the purpose set forth.

**29,601. LATHROP KAZAR,** Leroy, Ill. Mole Plows. Aug. 14, 1860.

This improvement consists in a new mode of constructing the mole or drain plow, by means of which, whilst the upper part of the underground or ditch is left in a solid and compact form, the sides and bottom will be left uncom-pressed that the water may precolate freely through them.

Claim. The peculiar arrangement of the landsides A, with respect to the adjustable apron C, as operated, and inclined plane D, the whole being constructed in the manner and for the purposes set forth.

**30,015. A. L. O. WALL, GEORGE ROBERTS, and M. S. CARTTER,**

Decatur, Ill. Mole Plows. Sep. 11, 1860.

Claim. 1. The combination of the spools G H, and shaft F, with the system of cords d<sup>1</sup>, d<sup>2</sup>, d<sup>3</sup>, levers D, and pulleys d<sup>4</sup>, when the whole are arranged together for joint operation, substantially in the manner described, for the purpose set forth.

2. The construction of the front axle C, with a swiveling bearing e, in combination with the semi-circle c<sup>2</sup>, and turning latch c<sup>1</sup>, when arranged together for joint operation, substantially as and for the purposes set forth.

3. Supporting the wheels in adjustable arms h, when said arms are arranged and operate, in relation to the bent axles, substantially as and for the purpose described.

**30,036. W. B. ATKINSON,** Plymouth, Ill. Mole Plows. Sep. 18, 1860.

Claim. 1. The combination of the V-shaped sharp pointed mole E, with the side flangs F, constructed and operating in the manner and for the purpose set forth.

2. The arrangement of the clamp K, in combination with the shoe E, constructed and operating substantially as and for the purpose specified.

**30,041. H. BAGLEY,** Tipton, Iowa. Mole Plows. Sep. 18, 1860.

Claim. The arrangement of the swivel or oscillating bar H, upright G, adjusting screw rod J, and nut K, with the adjustable stock D, beam A, screw L, and mole tooth E, as and for the purpose shown and described.

**30,635. JOHN H. ELWARD,** Ottawa, Ill. Mole Plows. Nov. 13, 1860.

Claim. The sectional mole e d c, the colters a and b, the colter a being movable, with their respective loops and joints, in combination with the side draught of the plow from the link or loop at f, on the side of the beam A, through one of the slots in the transverse piece, for the purpose of giving any desired curvilinear direction to the ditch or drain, when the several parts are arranged and operated together as represented, and substantially as described.

**1,138. M. A. HOWELL, Jr.,** assignee of J. H. Elwood, of Ottawa, Ill. Mole Plows. Nov. 13, 1860. Reissued Feb. 19, 1861.

Claim. 1. In combination with a plow or machine for purposes of underground draining, a stationary colter, and a colter the front edge of which may be moved laterally, and for the purpose and substantially as described.

2. The sections e d and c, in combination with the colters a and b, when arranged as and for the purposes set forth, substantially as described.

3. The movable colter a, in combination with the side draught, as applied at the link or loop at f, on the side of the beam A, through either of the slots in the transverse piece upon the forward end of the beam A, for the purposes substantially as set forth and described.

**30,659. OWEN STURDEVANT,** Maquon, Ill., assignor to himself and J. S. Gregory, of said Maquon. Mole Plows. Nov. 13, 1860.

Claim. Forming a circular hole or suitable space under the end of colter E, in combination with a groove in the top surface of the mole tooth a and the closing portion a<sup>1</sup>, placed behind the mole tooth, substantially as described and for the purposes set forth.

**31,117. HOMER GILLET,** Lyndon, Ill. Mole Plows. Jan. 15, 1861.

Claim. The spring K, or its equivalent, when used in combination with the beams G and B, and adjusting screw J, as set forth, for the purpose described.

**31,313. J. A. HAMMER and J. P. GORDON,** Lisbon, Iowa. Mole Plows. Feb. 5, 1861.

Claim. The arrangement of the colter D and blade G, both being hinged to the mole by means of pivots b and c, and connected at the top by flanges d and f, and screw e, as described, in combination with the lever E and guide-pin K, for the purpose of a double adjustment, as set forth.

**31,317. MARTIN A. HOWELL, Jr.,** Ottawa, Ill. Mole Plows. Feb. 5, 1861.

Claim. 1. In combination with a drain or mole plow, a movable sickle, rasp, or saw, inserted in or annexed to a colter thereof, for the purpose set forth and substantially as described.

2. In combination with a machine for underground draining the application of a segmental wheel acted upon by a screw, both of which are fixed horizontally upon the beam of the machine for the purpose of giving a curvilinear motion to the machine, in contradistinction to the great power applied by a capstan.

3. In combination with a mole plow, a jointed shoe, hinged and swung to the lower side of the beam thereof, and a lever by which to control its motion, for the purpose set forth and substantially as described.

**31,771. H. H. BALLARD and H. McCLURE,** Mount Pleasant, O. Plows. Mar. 26, 1861.

Claim. 1. The combination of the curved pieces C C with the frame A, and mole and colter, substantially as set forth, whereby the colter and mole can be raised and turned over above the frame, and there securely held for transportation or storage.

2. The combination of the lever E and curved pieces C C with the frame A, and colter D, and mole, substantially as set forth, whereby the point of the mole can be raised by lever E, at the will of the driver.

3. The fins or compressors e e, in combination with the mole and colter, when arranged in relation thereto as and for the purposes set forth.

4. Forming the sides of the front of the mole parallel in combination with providing the middle of the mole with conveying pins, as set forth.

**32,866. LOURE GREEN, Great Bend, Pa.** Mole Plows. July 23, 1861.

The invention consists in combining with a single standard, as may be desired, a changeable mole, subsoil, and draining plow, for the purpose of performing a variety of farming operations.

Claim. The combination of the standard H H with the shares A, B, and C, and the flanches E, f and D, D, the whole constructed and arranged substantially as and for the purposes set forth.

**33,149. SAMUEL F. JONES, St. Paul, Ind.** Mole Plows. Aug. 27, 1861.

Claim. 1. The method of connecting the mole E to the cutter B by means of the slot e and clevis c, when constructed and operated substantially as shown and described, for the purpose set forth.

2. In combination with the slot e and clevis c, the mole E, screw rod J, and arm nut m, when combined and arranged to act conjointly, and used as shown and described, for the purpose set forth.

**34,074. RICHARD P. SMITH and JOS. R. GATES, Louisville, Ky.** Mole Plows. Jan. 7, 1862.

Claim. The draining plow, Fig. 4, provided with a press wheel o, with a concave periphery, when used in combination with the double-spool capstan, constructed as set forth, and for the purpose of under-draining.

**38,677. C. G. GRABO, Greenfield, Mich.** Mole Plows. May 26, 1863.

Claim. 1. The application to mole plows of a V-shaped colter, when the two shanks of said colter form such an angle with each other as to stand respectively to both sides of the perpendicular line drawn from the apex of the triangle to the plow beam, substantially in the manner and for the purposes herein described.

2. In combination with a V-shaped colter, as herein described, the draft-rod 7 and regulator 2, substantially in the manner and for the purposes herein set forth.

**39,118. STILLMAN A. CLEMENS, Rockford, Ill.** Mole Plows. July 7, 1863. Antedated Dec. 27, 1862.

Claim. 1. The mole a attached near its forward end by a pivot pin near to the front edge of the lower end of a cutter-bar b, substantially as described and for the purposes specified.

2. A cutter-bar b attached to a mole plow beam h, by the herein described or an equivalent mode which allows free pendulous and hinge movements to the cutter-bar, substantially as described and for the specified purposes.

**45,735. E. H. MORTON, Oxford, Iowa.** Mole Plows. Jan. 3, 1865.

Claim. 1. Attaching the sweep E to the capstan B, by means of the journal c and slotted bar D, on the latter, and the eye d on the sweep, substantially as and for the purpose set forth.

2. In combination with sweep E, the adjustable bail support G, constructed and applied to the capstan frame A, to operate as and for the purpose described.

3. The securing of the colter K to the beam H through the medium of the slot a and adjustable plates J J', arranged substantially as herein set forth.

**59,049. ADAM MILLER, Chicago, Ill.** Mole Plows. Oct. 23, 1866.

Claim. 1. The cutter brace E, when attached to a pivoted beam lever and movable colter, substantially as specified.

2. The arrangement and combination of the colter F, cutter brace E, and pivoted lever B, with the standards C, provided with ratchet and pawl and beam A, substantially as specified.

3. The arrangement and combination of the hooks L L, cords I I, and cross-bar k, with the mole H or G, for inserting two or more lengths or pieces of drain tile, substantially as set forth and specified.

**61,263. A. P. ROUTT, Liberty Mills, Va.** Draining Machines. Jan. 15, 1867.

Claim. The adjustable flaring wings G G, applied to the double mold board D in the manner described, and operating to clear away the dirt from the edges of the ditch, as and for the purpose set forth.

**62,116. JACOB CREAMER, Jeffersonville, Ohio.** Mole Plows. Feb. 19, 1867.

Claim. 1. The combination of the rectangular frame A, bent axles B B', and hinged retaining bars i and k, the said parts being respectively constructed and arranged for use substantially in the manner and for the purpose set forth.

2. The arrangement of the swinging frame A, capstan b'', capstan head b'', parallel bars e, chains e, lever d, and "horse" f, substantially as set forth.

**103,801. OLIVER W. VOORHIS, SMITH H. MAPES, and WILLIAM M. VOORHIS,** Lawrence, Ind. Combined Ditching and Tile-Laying Machines. May 31, 1870.

Claim. 1. The cutter B B', shoe A, upright G, and adjustable wings D, all constructed and arranged substantially as and for the purpose set forth.

2. The tile-laying device, composed of the adjustable plates E and inclined slide M, attached in the rear of the ditcher, substantially as and for the purpose set forth.

**107,162. GEORGE CHAMBERLIN,** Olean, N. Y. Ditching-Plows. Sep. 6, 1870.

Claim. The herein described construction of the beam A, blade B, and cone-point c, the latter being fitted to receive the angular cones D and E and the pieces D and F, being removable and interchangeable, as and for the purpose specified.

**117,441. JAMES I. METTLER,** Mendoza, Ill. Combined Ditcher and Pipe-Layers. July 25, 1871.

Claim. The mole A and stem A<sup>1</sup>, constructed with a tubular duct, A<sup>2</sup>, passing through both and opening at the rear of the mole, by means of which tile may be deposited in the hole made by the mole and immediately in the rear thereof, substantially as set forth.

**123,092. HENRY T. DIVELEBISS, Saratoga township, and JAMES S. BRASFIELD,** Whitefield township, Ill. Laying Drain-Tiles. Jan. 30, 1872.

Claim. In an apparatus for laying drain-tile, consisting of the ordinary ditching-beam carrying the usual knife and mole, and drawn by a capstan, the block or cap D, disk E, and clasp F, in combination with rod k, substantially as described.

**128,842. JAMES R. BARNETT,** Galeburg, assignor of one-half his right to J. W. Adcock, Utah, Ill. Mole-Plows. July 9, 1872.

The mole and stem on being drawn forward open and press the soil to either side for the free passage, without side pressure, of the plates. The tiles are dropped in a horizontal position, and the upper end of pivoted lever drawn forward, pressing the tile back into place.

Claim. The lever E, when combined and arranged to operate with the side plates C C', mole B, stem B', handle or beam A, and plate D, substantially as described, and for the purpose set forth.

**134,228. ISAAC STRIPE,** New Berlin, Ohio. Apparatus for Laying Drain Tiles. Dec. 24, 1872. Antended Dec. 20, 1872.

A set of gearing wheels attached to the mole so that as the implement is drawn forward the wheels are made to rotate and draw the mole gradually upward and in the metallic pipe by

which the drain-tiles are drawn into position.

Claim. 1. The combination of the bearing wheels H H and mole standard C, of a mole plow with a gear-train driven by said wheels and acting on said standard, so as to gradually raise the mole, substantially as and for the purpose specified.

2. The combination, with the mole D, of a hinged die-head, N, and closed conveying tube P R S S, said tube being made in sections and having a removable upper half and serving to convey the tiles into the ground and there leave them in position to form the tile-drain, substantially as specified.

3. The herein described conveying tube, consisting of the tube sections P R, constructed of the two parts P p and R r and with the notched ends T t, notches U U, ears W W, and pins u u, and of the cover sections S having the ears w w, and sliding bolt Q, the several parts being constructed and combined as specified.

**136,751. GEORGE W. NEVILL,** Richmond, Va. Drain-Tile-Laying-Apparatuses. Mar. 11, 1873.

Claim. A tool for placing tiles in a prepared ditch or excavation, consisting of tubes A B, connected by screw and pivoted straps as described.

**156,451. M. H. CRITCHET,** Neway Ohio Ditching and Tile-Laying Machines. Nov. 3, 1874. Filed Sep. 1, 1874.

The colters cut a triangular ditch, the earth of which is slightly raised by the plow. The tile are fed through a tube from the rear end of a plow at the same operation, and as the mole passes the earth settles back upon it.

Claim. 1. The combination of the ditching plow D, and tile-tube H, with adjustable guides m to receive the tile vertically, and the center colter G, all as and for the purpose set forth.

2. The combination of the frame A C a, plow D, tile-tube H, center colter G, side colters E E, and adjustable colter I, all constructed substantially as and for the purpose herein set forth.

**166,104. REUBEN HOFFHEIN,** York, Pa. Tile Making and Laying Machines. July 27, 1875. Filed May 25, 1875.

Claim. 1. Combined with the mole C, substantially as described, a mixing and feeding device, whereby concrete or cement may be mixed, fed, and discharged into the trench at the rear of the mole.

2. Combined with the mole C, the hopper D and screw E driven by gearing e f g h, actuated by the rotation of the wheels G.

3. The mole C and the device for mixing, feeding, and discharging the cement or concrete, the hollow end piece or former, either cylindrical or horseshoe shaped, combined with a core, for the purpose set forth.

4. Combined with the discharge or end piece and its former or core the loosely attached

drag & slightly larger than said core, for the purpose set forth.

5. Combined with the mole C and the discharge pipe c, the covering and compressing wedge I, to close in the earth over the discharge end of said pipe, for the purpose set forth.

6. Combined with the mole C and the pipe through which the cement is to be passed into the trench, the water pipe J, for the purpose set forth.

7. The process of constructing and laying concrete or cement tile in ground, substantially as described—that is to say by means of a mole plow, provided with a tube discharging at the rear of the mole—and apparatus for mixing, feeding, and discharging cement or concrete over cores or formers into the trench made by said mole, substantially as set forth.

**173,911. MATTHEW H. CRITCHET,** Neway, Ohio. Ditching and Tile-Laying Machines. Feb. 22, 1876. Filed Jan. 10, 1876.

Claim. The combination, with a ditching plow, A D, of the tile-tube H, hinged to the rear of the plow, the sled N, shoe K, with standards L and lever M, all constructed and arranged substantially as and for the purposes herein set forth.

**176,201. JOHN SCOTT,** Morgan County, Ill. Mole-Plows. Apr. 18, 1876. Filed Feb. 14, 1876.

Claim. 1. The solid mole A, having a flat bottom, A', and a hollow chamber or bearing, B, at its rear, provided with a clevis or hook at its center and a vertical slotted bearing, B', the whole constructed and arranged to operate substantially as described.

2. The mole A, having socket-bearing B and clevis or hook C, in combination with chain C', cap E, and key E', the whole constructed and arranged to permit of the tiles being laid, substantially as described.

**178,231. J. J. CAMPBELL,** La Fayette, Ind. Ditchers and Tile-Layers. June 6, 1876. Filed Jan. 21, 1876.

Claim. 1. In combination with the draft beam A and cutter-beam B, the plow E, carrying on its lower face the share E', for finishing the bottom of the drain, substantially as set forth.

2. In combination with the solid cutter beam B, opening the ditch by forcing the earth to each side, and drain-plows E, one or more auxiliary plows, F, arranged above the latter to loosen the earth, substantially as set forth.

3. The tile or gravel box, constructed in sections, made adjustable to conform to the depth of the cut, substantially as set forth.

4. In combination with the tile or gravel box, the flaring block I, for keeping the earth from caving in until the tile or gravel has been deposited behind the apron H, substantially as set forth.

**178,957. S. H. REYNOLDS,** Hillsborough, Ind. Tile-Laying Mole-Plows. June 20, 1876. Filed Apr. 25, 1876.

Claim. 2. The combination, with tube B, having delivery-tube E, of the lever F, bent laterally at its lower end, and pivoted between the side and partition of said tube B, as shown and described.

2. The combination, with the tube B E, of the vertical screw G and inclined screw H, nut I, and standard J, whereby the tube may be adjusted vertically and also at an angle to the beam, to regulate the depth of furrow and pitch of the tube, as shown and described.

**180,044. DAVID T. LUCAS,** Stockwell, Ind. Ditch-Digging and Tile-Laying Machines. July 18, 1876. Filed May 18, 1876.

Claim. 1. The plow C, consisting of parallel plates h h, beveled at i, and arranged inclinedly, as described, in combination with point j, cutter-blade D, brace E, and beam A, substantially as and for the purpose described.

2. The combination, with the plow having chute F, of the spring H and binding-screw I, substantially as and for the purpose described.

3. The combination, with the beam A, deflected at its rear extremity, of the plow C, arranged as described, the cutter D, brace E, and sled B, adjustably attached to and supporting the forward end of the beam, substantially as and for the purpose described.

4. The combination, with the plow having chute F, of the detachable trough G, composed of a piece of metal bent longitudinally, and adapted to be used substantially as described.

**188,149. C. B. KLINE,** Dodgeville, Iowa. Laying Drain-Tiles. Mar. 6, 1877. Filed Aug. 31, 1876.

A rubber of flexible tube placed upon the cable, filling the inside of the tile, and serving to keep them in line while being laid.

Claim. The combination, with a drain-plow, of a rope or cable and rubber tubing for laying tile, substantially as described.

**188,778. T. G. COIL,** Washington Court-House, Ohio. Ditching and Tile Laying. Mar. 27, 1877. Filed Aug. 23, 1876.

Claim. As an improvement in ditching and tile-laying, the combination of the rods E, nuts F, and casting G, for finding the breaks, substantially as shown.

**189,667. W. W. SNYDER,** Martinsville, Ohio. Flue-Ditchers. Apr. 17, 1877. Filed Feb. 3, 1877.

Claim. 1. The combination of the adjustable branched standard E, the rod F, the point or cutter G, the rotating spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed and its rear part smooth, with the beam A, handles B, and upright D, substantially as herein shown and described.

2. The combination of the adjustable branched standard E, the rod F, the rotating

spirally corrugated or ribbed cutter H, and the rotating cutter and packer I, having its forward part spirally corrugated or ribbed, and its rear part smooth, with the beam A, the handles B, and the upright D, substantially as herein shown and described.

**190,096. ALMON SWIFT,** East Elmore, Vt. Ditching and Draining Machines. Apr. 24, 1877. Filed Jan. 27, 1877.

Claim. The draining-machine herein described consisting of the plow D, having the eye D', the drag E, made larger than the plow, and provided with the hook E<sup>1</sup>, eye E<sup>2</sup>, cutting-edges e' e', and recess e, and the pipe-laying attachment F, having a small cylindrical shaft, e, with front hook, f, and a rear perforated block, F', the whole constructed, arranged, and operating in the manner and for the purpose set forth.

**193,019. WM. J. METTLER, and JAS. I. METTLER,** Mendota, Ill. Tile-Laying Machines. July 10, 1877. Filed Apr. 16, 1877.

Claim. 1. In combination with the mole B, standard D, and cutter C, the lateral inclined cutters N, and horizontally-adjustable lever F, with which the cutters N and C are connected, substantially as set forth.

2. The tile-tube I, having the lower end of the tube formed with inclined interior faces, and cut away at L, substantially as set forth.

**195,186. W. L. TYNER,** Standford, Ill. Implements for Laying Tile. Apr. 11, 1877. Filed Aug. 7, 1877.

From the lower end of a staff or handle projects at right angles a jaw or finger. At a short distance from this is a stud, which supports one end of a rod, the lower end of which rests in the permanent jaw. A moving jaw slides upon the rod and a groove in the handle, and is held in contact with the permanent jaw by a coiled spring. A rod connects the movable jaw with an angle-lever near the upper end of the handle, by which the spring is contracted, thus separating the jaws.

Claim. The herein-described implement for laying tile, consisting of the handle and jaw A B, movable spring-jaw C, having rod E, and lever and connecting-rod F G, substantially as specified.

**195,775. JAS. H. SPARKES,** Clinton, Ill. Tile-Laying Machines. Oct. 2, 1877. Filed July 9, 1877.

The tiles are fed from a box on the frame into a tube in rear of the opener.

Claim. The combination, in a tile-laying machine, of the box M, tube L, opener-standard J, and knife K, all connected, constructed, and arranged as shown and described.

**200,557. JAMES I. METTLER, and WILLIAM J. METTLER,** Mendota, Ill. Tile-Laying Machines. Feb. 19, 1878. Filed Dec. 29, 1877.

The under side of the mole is of a semicir-

cular form, and is provided on each side, about midway from the point to the heel, with a pointed cutter, diverging slightly, but not of sufficient length to cut the sod above.

Claim. The combination, in a tile-laying machine, of the mole A and lateral inclined cutters B, extending upward from the mole, but not to such a distance as to cut the sod, substantially as set forth.

**201,548. JAMES I. METTLER, and WILLIAM J. METTLER,** Mendota, Ill. Tile-laying Machines. Mar. 19, 1878. Filed Jan. 22, 1877.

Claim. 1. In combination with the beam A and mole B, the standard C and casing E, inclosing the standard, and tube F, hinged to the shoe and beam in rear of the standard, and within the overlapping sides of casing E, substantially as set forth.

2. The beam and tubular tile-deliverer, and means for lifting the rear end of the beam, in combination with the truck M, swinging behind the beam, so as to perform the double function of a truck for transporting the beam, and the tile-carrier for supplying when the machine is in operation, substantially as set forth.

**209,756. JOHN M. FUDGE, FRANCIS M. HOLMES, and SAM. McDONALD,** Niles Township, Delaware County, Ind. Ditching-Plows. Nov. 12, 1878. Filed Oct. 3, 1878.

Claim. 1. In combination with the ditching-plow blade C, a spreader, S, hinged thereto, having two wings or walls, s s, and the wedges or wedge-plates w, adapted to spread and hold said wings at varying widths, substantially as shown and described.

2. The wings s s, forming the sides of the spreader, and having horizontal grooves, in combination with the wedge-plates w, plow-blade C, beam A, and a lifting-screw, E, substantially as shown and described.

**220,757. EZRA M. HAMILTON, and CHARLES N. EARL,** Los Angeles, Cal. Apparatus for Making and Laying Continuous Concrete Pipe. Oct. 21, 1879. Filed July 9, 1879.

Claim. 1. The outwardly-enlarging case or cylinder A, with its tapering feed-tube B and hopper b, in combination with the piston D, provided with the movable cone d and flexible core F, whereby the plastic material is forced back and formed into a pipe shape, and the central hole formed at the same time, substantially as herein described.

2. The pipe-forming cylinder A, with its piston and lever D E, core F, and cone d, and provided with the slots a, in combination with the regulating draw-band C, whereby the diameter of the cylinder is changeable and the size of the pipe determined, substantially as herein described.

3. In combination with the pipe-forming cylinder A, with its piston D and flexible core F, the weighted hood G, whereby the pipe is

prevented from being pressed out of shape after leaving the cylinder, substantially as herein described.

**4.** The pipe-forming cylinder A, with its piston D and lever E, in combination with the flexible core F, attached to said piston by the rod e, and provided with the cone-shaped ends d, d', whereby the core or opening through the pipe is formed smoothly and breakage prevented in turning corners or on undulating ground, substantially as herein described.

**5.** The cylinder A, with a feed-tube, B, with its splits or slots a and draw-band C, provided with the hopper b and weighted hood G, and having the piston D and lever E, said piston having connected with it the flexible cone-ended core F, the whole adapted to be placed in a trench, along which it is moved by the action of the lever and piston in forming the pipe, whereby the pipe is made and laid at the one operation and at the same time in a continuous piece, substantially as herein described.

**231,908. WILLIAM HAMLET,** Merced, Cal. Machine for Forming and Laying Continuous Drain-Pipes. Sep. 7, 1880. Filed May 27, 1880.

Claim. **1.** The combination, with the cylinder A, having a feed-tube, B, and a fixed cone or core, d, disposed centrally in the cylinder, of the piston C and cutter p, connected to the piston-operating mechanism, substantially as and for the purpose set forth.

**2.** The combination, with the cylinder A, of the piston C, the crank-shaft I, with its cranks, connecting-rod j, and toggle-levers f g, substantially as specified.

**3.** The combination of the crank-shaft I, with its cranks h, the piston C, the toggle-levers f g, the connecting-rod j, the cutter p, and the lever q, substantially as specified.

**4.** In a machine for making and laying in place a continuous cement pipe, the combination, with the cylinder A, of the hinged side boards or runners, m, for the purpose set forth.

**5.** The tube or cylinder A, provided with side runners, m, and having the seat K and foot-rests l l, in combination with the cranks h h and intermediate connections for operating the piston to condense the cement and force the machine forward, substantially as specified.

**6.** In a machine for making and laying in place a continuous cement pipe, the hinged brake or shoe O, for the purpose described.

**259,248. WILLIAM T. WASSON,** Thorntown, Ind., assignor of one half to James A. Ball, same place. Ditching-Machines. June 6, 1882. Filed Oct. 31, 1881.

Claim. **1.** A secondary chute or gravel-box, j, combined with the tile-chute of a tile-laying ditching-machine, substantially in the manner and for the purpose set forth.

**2.** The combination, with the mole-plow b c, of the leveling-plow f, the tile-chute d, gravel-chute j, and beam a, substantially as shown and described.

**265,085. ANDREW S. HUGHES,** Eldora, Iowa. Ditching and Tile-Laying Machines. Sep. 26, 1882. Filed Apr. 4, 1882.

Claim. The combination, with beam E, the side bars, G, the cylindrical and pointed opener A B, the diverging blades C, the colter F, the inclined chute H I, and the scrapers K, of the balancing-pole L, secured to the upper surface of the side bars at right angles to the line of draft and projecting beyond the sides of the same, substantially as and for the purpose set forth.





## MOLD-BOARDS

| <i>Plate Claim</i>         |     | <i>Plate Claim</i> |                            | <i>Plate Claim</i> |     |                             |     |     |
|----------------------------|-----|--------------------|----------------------------|--------------------|-----|-----------------------------|-----|-----|
| Andrus, E.                 | 404 | 202                | Etzler, E. J.              | 482                | 208 | May, J. M.                  | 462 | 291 |
| Aubill, R. I.              | 475 | 205                | Faught, N.                 | 473                | 205 | Mead, S.                    | 465 | 292 |
| Baltz, C. H.               | 470 | 206                | Fields, J. W.              | 480                | 207 | Miller, W. D.               | 471 | 294 |
| Baird, E. M.               | 493 | 202                | Fosdick, L.                | 470                | 294 | Moore, G. H.                | 405 | 292 |
| Beard, G. A.               | 400 | 203                | Gaines, R. and Scott, M.   | 468                | 203 | Moore, G.                   | 467 | 293 |
| Beckett, S.                | 400 | 203                | Gibbs, J.                  | 493                | 292 | Olmsted, S. J.              | 466 | 293 |
| Begon, F.                  | 480 | 207                | Gooch, J. H.               | 465                | 202 | Payne, J. M.                | 475 | 295 |
| Bell, F. R.                | 477 | 209                | Hall, A.                   | 477                | 206 | Peacock, G.                 | 474 | 295 |
| Bell, F. R.                | 477 | 209                | Hulbert, S.                | 462                | 201 | Pitts, W. C.                | 465 | 292 |
| Bergen, C.                 | 461 | 201                | " " (R.)                   | 462                | 292 | Pollock, J.                 | 479 | 297 |
| Bradley, B. C.             | 470 | 206                | Jett, J. R. P.             | 473                | 295 | Quin, J.                    | 482 | 298 |
| Bryan, C. M.               | 404 | 202                | Kennedy, L.                | 471                | 294 | Richardson, L. W.           | 473 | 295 |
| Burton, O. F. and Hoyt, L. |     |                    | Kennedy, J. T.             | 481                | 298 | Rider, L. P.                | 467 | 293 |
| B.                         | 466 | 203                | Knight, E. R.              | 477                | 296 | Rider, L. P.                | 474 | 295 |
| Butler, M.                 | 473 | 205                | Knox, S. A.                | 463                | 292 | Sessions, F. E. and         |     |     |
| Canty, T.                  | 476 | 206                | Laflin, M. and Slosson, E. | 472                | 295 | Knox, S. A.                 | 472 | 294 |
| Carpenter, J. C.           | 470 | 197                | Lane, J.                   | 470                | 294 | Seymour, J.                 | 469 | 293 |
| Cartwright, E.             | 475 | 205                | Lane, J.                   | 472                | 295 | Smith, A.                   | 462 | 291 |
| Clark, J. and Yost, G. W.  |     |                    | Leach, S. J.               | 468                | 293 | Smith, D.                   | 470 | 294 |
| N.                         | 403 | 202                | Lewis, C. C.               | 474                | 295 | Snider, L.                  | 461 | 291 |
| Close, J. H.               | 480 | 207                | Long, J.                   | 479                | 297 | Thom, J. W.                 | 478 | 296 |
| Colwell, W. S.             | 408 | 203                | Looker, J. M.              | 478                | 206 | Thompson, L. P.             | 480 | 297 |
| Colwell, W. S.             | 470 | 204                | Maddux, T. B.              | 481                | 298 | Townsend, J. T.             | 464 | 292 |
| Correll, R.                | 478 | 207                | March, T.                  | 468                | 293 | Trowbridge, R.              | 467 | 293 |
| Davis, A. B.               | 471 | 204                | Marsh, J. S.               | 407                | 293 | Tucker, A. W.               | 479 | 297 |
| Domischke, C.              | 482 | 208                | Matteson, D. C. and        |                    |     | Whiteley, W.                | 469 | 294 |
| English, F. O. and Whyte,  |     |                    | Williamson, T. P.          | 475                | 295 | Witherow, S. and Peirce, D. | 461 | 291 |
| R.                         | 478 | 206                | May, H. H.                 | 461                | 291 | Wooldridge, S. H.           | 481 | 268 |

## MOLD-BOARDS.

**ISAAC SNEIDER**, Mount Pleasant, Pa.  
Plows. July 2, 1836.

The improvement in the land-side, cutter, shear and point, as before described, enabling the farmers to change or reverse the position of the nose and shear four times, and producing a new cutting edge each time.

**1,357. SAMUEL WITHEROW** and  
**D. PEIRCE**, Gettysburg, Pa. Plows.  
Oct. 5, 1839.

Claim. Giving to our mold-board the form of a segment of a cycloid, conversely on its face, in lines leading from front to rear, and concavely in the lines of the ascent of the furrow slice, in the manner and for the purpose herein described.

**2,626. CORNELIUS BERGEN**, Brooklyn, N. Y. Plows. May 16, 1842.

Claim. 1. The peculiarity of the form of the mold-board as produced by the combination of the increased twist and wedge, the advantages of which are that it materially lessens friction, and consequently the traction or draft is much diminished, the covering is more uniform on every part of it, which causes it to do its work in a superior manner.

2. The manner in which the point and share are formed and held to the mold-board, the peculiarity of their construction, and the manner in which they are held in their place by means of the gripes, which enables them to be made of cast-iron instead of wrought, sufficiently strong for all purposes, and consequently the annual cost is much cheaper.

3. The additional piece to heighten the mold-board when desired, the advantages of which are that a second slice may be taken out of the bottom of a furrow previously made and cast completely above, which answers the purpose of trenching as performed with a spade. It is also of great service when plowing weedy ground, all as herein described.

**3,069. HARVEY H. MAY**, Galesburg, Ill. Plows. May 2, 1843.

Claim. The fastening of the shares or edges between jaws, so that a dull share can be quickly taken out to sharpen or to exchange without inconvenience; so that the shares can be made to fit in the field as well as in the shop; so that the often sharpening of the shares which is so necessary on these prairies does not spoil the shares by drawing them from the holes and out of shape, as is the case when bolts go through them; so as to avoid spoiling the running of the plow by sharpening, as is the case when the shares are riveted and welded; and so that the shares can be made with much less cost and risk than in either the common way of riveting and welding or of punching holes and fitting for bolts.

**3,576. AARON SMITH**, Bloomfield, Mich. Plows. May 6, 1844.

Claim. I am fully aware that mold-boards have been made with the lines straight which are parallel to its base, but not parallel, as I believe, to the edge *u s* of the board; and I am also aware that lines radiating from an assumed-point have been applied to the forming of the face of a mold-board, such lines having been straight, or of such a curvature as may have been preferred by the maker; but such assumed radiating-point has been below the base-line of the mold-board, and has consequently failed in effecting the purpose intended. I do not therefore claim anything new in the principle; but I do claim to have devised a mode of carrying out the principle upon which my mold-board is formed, so as to have constructed an instrument more perfect in its action than any hitherto made. And I will here observe that while I have given such precise measurements and proportions as I have found and verily believe to be the best in practice, they may be deviated from to a slight extent without essentially changing the construction of the improved plow. The radiating and parallel lines, for example, may be slightly curved, instead of being straight. The particular outline may also be in some degree changed, while the whole structure would remain substantially as described, and my right be as readily violated as though such colorable changes had not been made.

**4,488. JOHN M. MAY**, Philadelphia, Pa.  
Plows. May 2, 1846.

Claim. 1. Making the landside, the bed of the share, and the standard all in one piece of sheet steel metal, cut out in the manner described, so as to afford greater stability and to reduce the cost of construction.

2. Making the colter with two points and two cutting edges and secured to the landside of the standard to admit of reversing end for end, and inclining the forward point up or down, for the purpose and in the manner described.

3. Connecting the axle-tree of the guide wheels with the beam by means of adjustable arms to afford a means of directing the plow, as herein described.

**10,031. SAMUEL HULBERT**, Ogdensburg, N. Y. Plows. Sep. 20, 1853.

Claim. Constructing a mold-board of a plow so that a horizontal line drawn at any height across its working side shall describe the convex arc of a given circle, and any line drawn across its working side at right angles to the base shall also describe the convex arc of a circle, substantially as set forth.

**337. SAMUEL HULBERT,** Ogdensburg, N. Y. Plows. Patent No. 10,031. Sep. 20, 1853. Reissued Jan. 1, 1856.

Claim. Constructing a mold-board and molding part of the share of a plow, so that a horizontal line drawn at any height across their working side shall describe a convex arc of a circle, and any line drawn across its working side at right angles to the base, shall also describe the convex arc of a circle separately or connectedly, the whole or either part substantially as set forth.

**10,629. EDWIN M. BARD,** Philadelphia, Pa. Plows. Mar. 14, 1854.

Claim. Securing the cutters in openings formed in the mold-board at the points and in the inclined positions outward and backward represented, so as to enable the lower forward cutters to cut and loosen the soil preparatory to its being overturned, and the other cutters to more thoroughly pulverize it as the body of earth is thrown over, and the cutters, from their peculiar inclined position, to disengage themselves from weeds and other obstacles as they pass the same, the several parts being precisely as described.

**11,523. JOSHUA GIBBS,** Canton, Ohio. Plows. Aug. 15, 1854.

Claim. Making the working-surface of the mold-board in the form of a section of the interior surface of a hollow cylinder, the center or axis of said cylinder being parallel, or nearly parallel, horizontally to the base of the mold-board or bottom of the plow, substantially as described.

**14,224. JOHN CLARK and GEORGE W. N. YOST,** Pittsburgh, Pa. Plows. Feb. 12, 1856.

Claim. The revolving share-cutters B B<sup>1</sup>, attached to the mold-board in combination with the bearing-plate or strap D, and the extension of the land side (or the equivalent of said bearing-plate D and extension of said land side) for securing the free and certain revolution of the series of revolving share-cutters B B<sup>1</sup>, substantially in the manner and for the purpose set forth.

**15,887. SAMUEL A. KNOX,** Worcester, Mass. Plows. Oct. 14, 1856.

Claim. The form of the working-surface of the mold-board of plows, substantially such as described, and composed or combined of the several characteristic features above specified.

**16,901. ELLIOT ANDRUS,** Geneva, N. Y. Plows. Mar. 31, 1857.

Claim. 1. The frame E E', for the purpose of holding the mold-board B, attaching the handle P', and supporting the end of the wheel-shaft S.

2. The manner of attaching the mold-board upon pivot-points, in combination with the lock d' d' and links L L'.

3. The combination of the wheel W, cams &

a<sup>1</sup> a<sup>2</sup> a<sup>3</sup> a<sup>4</sup> a<sup>5</sup>, and friction-roller b, or their equivalents, to produce the oscillating motion of the mold-board, in the manner and for the purpose substantially as described.

**23,898. C. M. BRYAN,** Wright City, Mo. Plows. May 10, 1859.

Claim. Attaching the mold-board D by means of the bolts h h i i passing through the cleets b b, at the inner side of the mold-board, and into the landside E and handle d', the bolts g d<sup>1</sup>, and the brace bar d.

**26,133. JOHN T. TOWNSEND,** Birmingham, Tex. Plows. Nov. 15, 1859.

Claim. The arrangement and combination of the landside A, standard B C, mold board H, share F, braces or arms D E I, and cross bar G, substantially as and for the purpose set forth.

**28,169. J. H. GOOCH,** Oxford, N. C. Plows. May 8, 1860.

Claim. Making the mold-board extension in two parts, A and B, the dividing line between the two parts A and B being horizontal, or nearly horizontal, for the purpose of transforming the plow into a cultivator, sub-soil, or complete turning plow, by simply detaching either one or both of those two parts, substantially as set forth.

**28,329. WILLIAM C. PITTS,** Austin Tex., Assignor to William A. Pitts, same place. Plows. May 15, 1860.

Claim. 1. The construction of the plow with double points with the hole in the centre so that either end may be turned to the ground and fastened to the stock or "helve" of the same, by the bolt through the hole in the centre, so that when one point wears out or breaks off, the other can be turned down

2. The separate bar, so constructed as to fit and sustain the plow, as specified.

And I hereby disclaim the invention of the stock of said plow, and claim only the invention of the share and bar, as specified.

**31,028. GILBERT H. MOORE,** Rochester, N. Y. Plows. Jan. 1, 1861.

This invention consists in the formation of the mold-board by the combination of two spiral curves which recede from the centre while they continue to revolve about it; the first spiral commencing with the junction of the share with the land-side, and terminating at about midway of the mold-board, at the point where the furrow-slice reaches the perpendicular.

Claim. A plow constructed and composed of the several characteristic features described.

**39,943. SOLOMON MEAD,** New Haven, Conn. Plows. Sep. 15, 1863.

Claim. The construction of the mold-board or turning surface of plows to correspond with a section or segment of a cone, substantially as before described and for the purposes set forth.

**44,215. S. J. OLMS TED,** Binghamton, N. Y. Plows. Sep. 13, 1864.

The object of this invention is to provide for treating a wider or narrower furrow by adjusting the mold-board. This is accomplished by pivoting the mold-board to the share in such a manner that may be elevated or depressed obliquely, and thus accomplish the desired object.

Claim. Constructing plows with movable or adjustable mold-board moving up and down, substantially as herein set forth.

**51,917. OSCAR F. BURTON,** New York, N. Y., and **LORAB. HOIT,** Cedar Falls, Iowa. Plows. Jan. 9, 1866.

The mold-board is made of glass; its edge is inserted in grooves in the share, and it is clamped by its upper edge and outer corner to the stock.

Claim. 1. Making the mold-board of a plow entirely of glass, substantially as and for the purpose described.

2. The combination of clamps *c d* and V-shaped grooves *a b*, for the purpose of attaching the mold-board *D*, without bolts or screws, substantially as and for the purpose set forth.

**55,984. SOLOMON BECKETT,** Olive Branch, Ohio. Plows. July 3, 1866.

The front edge of the mold-board is protected by an overlapping "shin" plate attached to the cutter.

Claim. 1. The sheathing plate *B*, fitted and secured to mold-board *A* of a plow, for the purpose above described and set forth.

2. The sheathing plate *B*, in combination with cutter *C*.

**57,463. GEORGE A. BEARD,** Cave-town, Md. Mold-Boards for Plows. Aug. 28, 1866.

The extended surface of the mold-board prevents choking in briars or tall grass.

Claim. The elevation and enlarged extension of the mold-board of the plow, as above described, and nothing else or more.

**58,855. JAMES S. MARSH,** Lewisburg, Penn. Plows. Oct. 16, 1866.

Claim. Constructing the mold-board of a turn plow with an upper extension *b*, having a concave depression *a* formed in it above the highest point of entrance into the ground, substantially as described.

**59,267. L. P. RIDER,** Munson, Ohio. Mold-Boards for Plows. Oct. 30, 1866.

The mold-board is so constructed that the lower inner corner of the furrow slice shall pass in a straight line along it.

Claim. The construction and arrangement of the plow mold-board in the manner and for the purpose set forth.

**66,267. RUFUS TROWBRIDGE,** Waterloo, Iowa. Shovel Plows. July 2, 1867.

The plate is glass and is let into a recess of

the share, and its surface is flush with the same.

Claim. The combination of a flat glass plate to the face of the share of shovel plows, substantially as specified.

**68,102. GILPIN MOORE,** Moline, Ill., assignor to himself and Deere & Co., same place. Plows. Aug. 27, 1867.

Claim. 1. The plan or method herein described of constructing the mold-boards of plows.

2. A plow having its mold-board constructed of a form corresponding with the form of the under surface of the furrow slice at the instant it is severed from the earth, substantially as described.

**68,635. THOMAS MARCH,** Dallas, Mich. Plows. Sep. 10, 1867.

The mold-board and landside are of cast iron, and have edge ribs, between which are let in plates of steel, so as to cover nearly the whole surface.

Claim. The method herein described of constructing the mold board and landside of a plow, substantially as described.

**72,305. S. J. LEACH,** Tuscaloosa, Ala. Plows. Dec. 17, 1867.

Claim. 1. Facing the mold-board of a plow with a thin detachable sheet or plate of wood, steel, or other suitable material, substantially as herein shown and described and for the purpose set forth.

2. Forming the mold-board *B* of a plow with a shoulder *b'* and with slots or sockets *C* to receive the forward edge and tongues of the facing plate *D*, substantially as herein shown and described and for the purpose set forth.

**73,504. WILLIAM S. COLWELL,** Pittsburg, Pa. Plows. Jan. 21, 1868.

The mold-board is convex, from heel to point and side to side.

Claim. A plow provided with a mold-board, having the surface convex, in the manner and for the purpose herein described and set forth.

**74,679. RICHARD GAINES and MELCHI SCOTT,** Fairfield, Iowa. Plow Mold-Boards. Feb. 18, 1868.

The glass is secured upon the surface of the mold-board by the marginal flange and the headed studs.

Claim. 1. The metallic plow mold-board *A*, provided with V-shaped groove along the edges, and studs or buttons *B B* on its concave surface, in combination with glass cast over said surface in its molten state, substantially as herein set forth and specified.

2. The protuberances or knobs *C C*, arranged as described, for the purpose of securing the mold-board to the plow, substantially as set forth, in combination with the above described mold-board.

**75,987. JOSIAH SEYMOUR,** Coventry, N. Y. Mold-Board for Plows. Mar. 24, 1868.

The face of the reversible mold-board has a single, flat surface for some distance backward from the point, and from that point gradually rises in the center, so as to form two faces, whose edges, cut in section perpendicularly to the axis, will have straight lines.

Claim. The forming of a mold-board for plows, either single or reversible, in such a manner that the lines bounding the vertical sections of said mold boards shall be straight, substantially as herein described and set forth.

**78,501. WILLIAM WHITELEY,**  
Springfield, Ohio. Plows. June 2, 1868.

Claim. 1. The construction and use of plows, when the shapes of those parts which cut and invert the furrow slice are determined and obtained by the herein described rule, substantially as set forth.

2. The method of obtaining modified forms of the plow shape, substantially as herein described.

3. In combination with the draught bolt J, the stirrup G, or its equivalent, which surrounds both bolt and beam, and binds them firmly together, without perforating or otherwise weakening said beam.

4. In combination with the post, to which the mold-board is connected, the bolt J, or its equivalent, for the purpose of connecting the draught rod at a rigid point in front of the plow post.

5. In combination with the post C and beam D, the notched flange E, for the purpose of shifting the position of the said beam in relation to the post C, so that a team of two or three horses may be used at pleasure.

6. In combination with the clevis L, or its equivalent, the eye bolt M and washers N, substantially as and for the purposes set forth.

7. In combination with the front projection at the top of the plow post and the land side of share, the colter Q, or its equivalent, secured to said projection, or its equivalent, in front of the clamping stirrup, in order to equalize the upward pressure, substantially as set forth.

8. The brace S, in combination with the post C and stirrup G, substantially as and for the purpose set forth.

9. The stirrup G, constructed with the horizontal portion h, to enable the beam to be adjusted sideways, as described and for the purposes set forth.

10. The share B, constructed with the land-side bar R, substantially in the manner shown.

**80,314. DANIEL SMITH,** Cedar Falls, Iowa. Plows. July 28, 1868.

Claim. 1. A mold-board for plows, which is made entirely of glass, substantially as described.

2. The combination of a glass mold-board and a metal share, substantially as described.

3. Securing a glass mold-board to a plow frame, by means of clamps a b, or their equivalents, substantially as described.

4. The construction of the side clamps a b

with curved overhanging lips a' b', substantially as described.

**82,130. JOHN LANE,** Chicago, Ill. Plows and Cultivators. Sep. 15, 1868.

Claim. The improvement herein described in the manufacture of plows and cultivators, that is to say, the making of them of metal plates, having a central layer of soft iron or steel, with exterior layers of cast steel, substantially as and for the purposes described.

**83,703. LEVI FOSDICK,** Tiskilwa, Ill., assignor to David Reigel, same place. Plows. Nov. 3, 1868.

This plow belongs to a peculiar class employed for breaking up new ground, and the rods constitute the mold-board. Set screws, bearing against the back of the handle, are made to produce a pressure of the stirrups against the bolts, and thereby firmly retain the rods and bolts in place.

Claim. The securing of the rods G to the handle B, by means of bolts h and stirrups H, substantially as shown and described.

**88,851. WILLIAM S. COLWELL,** Alleghany City, Pa. Plows. Apr. 13, 1869.

Claim. Providing a plow with a mold-board, the surface of which is, from its point A to its heel B, convexed, and also convexed on the lines X, and straight on the lines Z, and curved from point A to heel B, as herein described, and for the purpose set forth.

**90,271. ISAAC KENNEDY,** Bingham, N. Y. Plows. May 18, 1869.

Claim. The supplementary mold-board A, attached to the mold-board of the plow, by means of the clamp D D and thumb-screws, or their equivalents, substantially as herein described, and as essential for the purposes set forth.

**91,472. WILLIAM D. MILLER,** Enon, Ohio. Plows. June 15, 1869.

Claim. 1. A plow mold-board, constructed upon the principle and in the manner substantially as set forth.

2. The lug M and groove N, in combination with the cutter L' and post E, as set forth.

**93,284. ANDREW B. DAVIS,** Catahoula Parish, La. Plows. Aug. 3, 1869.

Claim. Covering plows on their front faces and on their landsides with a series of thin steel, or hardened iron plates A and C, substantially as herein described, for the purpose set forth.

**99,516. F. E. SESSIONS and SAMUEL A. KNOX,** Worcester, Mass. Mold-Board for Plows. Feb. 1, 1870.

Claim. A metallic mold-board for plows, made by the process, and in the manner substantially as above described.

**104,166. MATTHEW LAFLIN, and ENOS SLOSSON,** Chicago, Ill., assignors to Matthew Laflin. Plows. June 14, 1870. Claim. 1. The metal frame A, having the hollow or space B' therein, for the purpose substantially as described.

2. The mode of bedding the mold-board B in the metal frame A, as herein described and for the purposes set forth.

**107,925. JOHN LANE,** Chicago, Ill., assignor to Hapgood & Co., same place. Mold-Boards for Plows. Oct. 4, 1870.

Claim. A plow mold-board, having the greatest thickness at the point, and the thickness gradually decreasing along the land-side (or shin) end of the mold-board, when made substantially in the manner herein set forth.

**108,004. MANLOVE BUTLER,** Vernon, Ind. Plows. Oct. 4, 1870.

Claim. 1. The plain perpendicular mold-board D, when its lower edge is in one horizontal plane with the cutting edge of the share and the sole of the land-side, substantially as set forth.

2. The combination of the mold-board D and the share B, when arranged with reference to each other, as described, so as to leave a space between the upper edge of the share and the face of the mold-board, for the purpose set forth.

**108,149. JOHN R. P. JETT,** Knoxville, Tenn. Plows. Oct. 11, 1870.

Claim. The arrangement of the point I and seat H  $\lambda'$  for the reception of the mold-boards J or L, as desired, substantially as and for the purpose set forth.

**109,250. LIONEL W. RICHARDSON,** Roscoe, Ill. Plows. Nov. 15, 1870.

Claim. The securing a steel mold-board, in sections of various sizes and shapes, to an iron back, by means of bolts or otherwise, in the manner and for the purpose set forth.

**110,758. NELSON FAUGHT,** Pittsburgh, Ind. Plows. Jan. 3, 1871.

Claim. 1. The mold-board A, when constructed as described, and provided with the flange  $\alpha$  and curve A', combined, so as to turn the sod or turf from the time when it is raised by the point, as herein described and shown.

2. The bottom extension E of the share-plate D when formed in one piece with the point C, and arranged to operate as herein described and shown.

**114,044. LEMAN P. RIDER,** Pittsburg, Pa. assignor to himself and James Marshall, same place. Plow Mold-Boards. Apr. 25, 1871. Antedated Apr. 12, 1861.

Claim. The mold-board, constructed with the grade of the board in a true inclined plane extending from the point to the extreme end of the wing, and with the greatest height of said plane equal to the width of the plow, as and for the purpose described.

**118,551. GEORGE PEACOCK,** Selma, Ala. Mold-Boards for Plows. Aug. 29, 1871.

Claim. A mold-boards for plows, corrugated and perforated, substantially as herein shown and described, for the purpose specified.

**130,435. CHARLES C. LEWIS,** Gainesville, Ala. Plows. Aug. 13, 1872.

Claim. 1. The arrangement of the standard B and brace E in connection with the beam A, share C, land-side D, and wooden mold-board G, substantially as herein shown and described, and for the purposes set forth.

2. The iron plate F, interposed between the standard B, share C, land-side D, and wooden mold-board G, substantially as herein shown and described.

**144,255. EDWARD CARTWRIGHT,**

De Witt, Neb. Plows. Nov. 4, 1871. Filed Oct. 18, 1873.

The share lies nearly flat with the ground, the standard is high, and the mold-board convex and very narrow, diminishing in width to its termination, and rising gradually from the heel of the share.

Claim. The point or lay  $\alpha$ , having a flat cutting-edge and a convex surface, in combination with the mold-board g, made convex its entire length, and contracting and diminishing in width to its termination, substantially as shown and described.

**149,515. JOSEPH M. PAYNE,** Birdville, Tex. Plows. Apr. 7, 1874. Filed Aug. 30, 1873.

Claim. A black-land plow having a long and narrow mold-board and share, presenting right lines from its point to its heel, and a gentle curve transversely, said curve becoming more vertical as it approaches the rear end of the mold-board, as and for the purpose mentioned.

**151,143. DON CARLOS MATTESON** and **TRUMAN P. WILLIAMSON,**

Stockton, Cal. Mold Boards for Plows. May 19, 1874. Filed Dec. 13, 1873.

Plates are rolled having thick edges and gradually growing thin to the center. The mold-boards are cut lengthwise from the blanks making a reversible mold-board, the points and colter-edges of which are thickest.

Claim. As a new article of manufacture, a reversible plow, having its vertical cutting-edges B B thicker than the vertical center of the plate, substantially as shown and described.

**153,297. ROSE IRVIN AZBILL,** Edwardsport, Ind. Plows. July 21, 1874. Filed June 18, 1874.

The cross-bar carrying the knives is attached to a lever, by which the knives are thrust out of the slots in the mold-board or may be withdrawn.

Claim. A series of adjustable knives passing from underneath through slots in the mold-board of a plow and operated by a suitable

lever, substantially as and for the purposes herein set forth.

**154,119. BYRON C. BRADLEY,** Chicago, Ill. Plows. Aug. 18, 1874. Filed June 12, 1874.

Claim. A plow having a convex mold-board and share, the crown point or line of convexity extending from a point in the cutting-edge of the share to the delivery-point of the mold-board upon the line  $\epsilon$ , substantially as and for the purpose specified.

**156,836. CHARLES HENRY BALTZER,** Plows. Hickman, Ky. Nov. 17, 1874. Filed May 25, 1872.

Claim. 1. In combination with the mold-board H formed of a section of a cylinder, and applied as described, the lower mold or plate G' g' applied so as to be flush with the front edge of the standard, as described, and having the inclined slots as a means of adjusting the mold-board both vertically and toward the standard and land-side to compensate for wear.

2. In combination with the mold-board H, the slotted mold G' g', and the standard B, all having the coinciding curvatures described, the slotted angle-plate K k' also having a corresponding curvature and slots, and having a side wing or flange, and connected to and bracing the handle, all as shown and described.

3. The described combination and arrangement, with the mold board H, of the described means for adjusting the same downward and toward the land-side, and of the slotted and adjusting plate D rigidly secured to the plow-standard, for permitting the plow to take more or less land, as shown and described.

**158,026. THOMAS CANTY,** Kaufman, Tex. Plows. Dec. 22, 1874. Filed Aug. 10, 1874.

Claim. 1. The share E, having the continuous cutting-edge and notched upper edge, the flat mold-board strips F G H, and branched T headed brace I J N, combined and arranged as shown and described, for the purpose specified.

2. The land-side C, share E, and brace D, welded together, as shown and described.

3. The brace D, welded to the land-side C, bolted to the standard B, and arranged to support the strip F of the mold-board, as set forth.

**163,352. FRANCIS R. BELL,** Marshall, Tex. Plows. May 18, 1875. Filed Apr. 10, 1875.

Claim. A wooden mold-board F, for plows, saturated with oil, and provided with a number of oil-receiving holes or reservoirs, f', in its edges to keep it saturated, substantially as herein shown and described.

**171,477. ASA HALL,** Rockford, Ill., assignor to himself, John G. Elliott, and Edward D. Hall, same place. Plows. Dec. 28, 1875. Filed Sep. 13, 1875.

Claim. In combination with a plowshare,

a plow mold-board constructed substantially as described, with its opposite edges d fitted to the edge f of share A, and its opposite edges g made to form a shin line with the face of the land-side, and made reversible, as described, for the purpose of greater durability.

**174,423. EUGENE R. KNIGHT,** Omaha, Neb. Plows. Mar. 7, 1876. Filed Dec. 27, 1875.

Plow formed of a broad colter-plate bent at right angles to form a flat cutting-share, also turned up to form a vertical cutter at the outer end, and provided with an adjustable skeleton mold-board.

Claim. The combination, in a sod-breaking plow with mold-board arms H, of colter-share F, bent the width of furrow in a horizontal plane and upwardly at the outer end, as and for the purpose described.

**178,898. FRANCIS R. BELL,** Marshall, Tex. Plows. June 20, 1876. Filed Apr. 25, 1876.

Claim. A wooden mold-board, faced upon its rear side with metal, having a recess or chamber between it and said metallic facing, and perforated with numerous small holes, substantially as herein shown, and for the purpose described.

**189,636. J. M. LOOKER,** Abilene, Kans. Plows. Apr. 17, 1877. Filed Feb. 26, 1877.

Claim. 1. A plow provided with an arrow-head point M, having its land-side wing projecting beyond the line of the land-side of said plow, substantially as herein shown and described.

2. The share N, formed solid with the arrow-head point M, made nearly flat, and having the center part of its forward edge curved forward, substantially as herein shown and described.

**191,267. J. W. THOM,** Minneapolis, Kans. Plows. May 29, 1877. Filed Dec. 18, 1876.

To a cross-plate, secured to a curved land-side bar and brace, a share having cutter is attached.

Claim. The combination, in a sod-plow, of the share A, having cutter a, the curved land-side bar E, the curved brace D, and plate c, all arranged and secured together substantially as described.

**194,231. EZRA O. ENGLISH, and ROSANNA WHYTE,** St. Louis, Mo., administratrix of N. Whyte, deceased. Plows. Aug. 14, 1877. Filed Jan. 11, 1877.

Claim. 1. The combination, with a plow, of a perforated tube communicating with the face of the mold-board, and with a reservoir for containing a lubricating material, substantially as described.

2. The combination, with a plow, of the perforated flanged tube f, the vertical pipe F,

and a suitable lubricating reservoir, substantially as described.

3. The combination, with the colter and share of a plow, of an attachment for supplying a lubricating material to the heel of the colter and point of the share, substantially as described.

4. The combination, with the colter and share of a plow, of the pipe  $a'$ , terminating at its lower end at the heel of the colter and point of the share, and a reservoir for containing a lubricating material, with which the upper end of the pipe communicates, substantially as described.

**196,744. RUDOLPH CORETH,** Belleville, Ill., assignor to Otto C. Meusebach, same place. Plows. Nov. 6, 1877. Filed June 30, 1877.

Claim. 1. The movable bars  $e$ , in combination with the skeleton mold-board  $D$ , substantially in the manner and for the purpose set forth.

2. The combination of the bars  $e$ , braces  $E$ , links  $g, g'$ , levers  $H$  and  $F$ , and the slotted mold-board  $D$ , substantially as set forth.

**201,355. JOSEPH POLLOCK,** Selma, Ala. Plows. Mar. 19, 1878. Filed Dec. 7, 1877.

A cast-iron mold-board with dovetailed grooves upon its surface, which are filled with strips of wood.

Claim. A mold-board for plows, consisting of the backing  $a$  and the strips  $c$ , substantially as shown and described.

**201,387. JAMES C. CARPENTER,** Council Grove, Kans. Plows. Mar. 19, 1878. Filed Dec. 24, 1877.

Arranged to slide the share forward as it becomes worn, and to fill the space between it and the mold-board with strips of steel of different widths.

Claim. The combination of the strip  $F$ , of steel, with the land-side  $A$ , the mold board  $B$ , the plate  $C$ , and the share  $E$ , whereby the space between the mold-board  $B$  and the share  $E$  is filled when the said share is moved forward, substantially as herein shown and described.

**207,751. JOHN LONG,** Massillon, Ohio. Plows. Sep. 3, 1878. Filed Aug. 24, 1878.

A straight-edge will touch the mold-board its entire length from heel to point on any horizontal line parallel to the base of the plow, and on any vertical line between the heel and point a straight-edge will touch the mold-board from top to bottom.

Claim. 1. A mold-board for plows curved, substantially as described, vertically and longitudinally, so that all horizontal sections shall preserve a straight line, and also the vertical sections be in straight lines, substantially as and for the purpose set forth.

2. The combination of the mold-board and share herein described to constitute but one

continued warped surface, having the straight horizontal lines continued from heel to point, and the system of vertical lines also continued over the share, substantially as and for the purpose described.

**213,149. ARGYLE W. TUCKER,** Waxahachie, assignor to Alfred & Sorley, Dallas, Tex., said Sorley assignor to George F. Alford, same place. Plows. Mar. 11, 1877. Filed Aug. 17, 1877.

A fire-box attached to the inside of the hinged mold-board, to assist by heat the scouring of the mold-board in sticky land.

Claim. 1. In a plow, the combination of a mold-board and fire-box, substantially as and for the purpose set forth.

2. The combination of the share  $E$ , hinged mold-board  $C$ , and fire-box  $F$ , substantially as and for the purpose set forth.

3. The fire-box  $F$ , provided with a draft-flue,  $c$ , in combination with a mold-board,  $C$ , substantially as and for the purpose set forth.

4. The fire-box  $F$ , provided with a flue,  $c$ , grate  $a$ , and hinged door  $b$ , in combination with the mold-board  $C$  and share  $E$ , as and for the purpose set forth.

**223,124. JOHN W. FIELDS,** Sherman, Tex. Mold-Boards for Plows. Dec. 30, 1879. Filed Sep. 1, 1879.

Claim. The combination of a water and air-chamber and a force-pump with a metallic perforated mold-board and land-side, in the manner substantially as herein described.

**223,708. JACOB H. CLOSE,** Phillipsburg, Kans. Plows. Jan. 20, 1880. Filed May 24, 1879.

Claim. In a sod-plow, the beam  $A$  and standard  $B$ , having the frog  $B'$  formed in one piece therewith and adapted to receive the skeleton mold-board, in combination with the share  $K$ , having colter  $K'$  and advanced point  $k'$ , secured to the land-side of the standard  $B$  and the under side of the frog  $B'$  by bolts  $k$ , substantially as and for the purposes set forth.

**227,405. LOUIS BEGON,** San Francisco, Gal. Plows. May 11, 1880. Filed Dec. 27, 1879.

Claim. The mold-board  $D E R B$ , curved as shown, and having the point  $H$  projecting, as shown, while the line  $H R K$  of the exterior lower edge of the mold-board converges toward the rear, so that the distance of the point  $K$  from the land-side equals the depth of the furrow, substantially as and for the purpose herein described.

**231,378. LESTER P. THOMPSON,** Phelps, N. Y. Plows. Aug. 17, 1880. Filed Apr. 2, 1880.

Claim. A mold-board or other wearing part of a plow provided with alternate strips of chilled and unchilled surface extending longitudinally or in line with the passage of the soil over it in plowing, as specified.

**232,868. SILAS H. WOOLDRIDGE,** Venice, Ill. Plows. Oct. 5, 1880. Filed May 13, 1880.

Claim. 1. The plow comprising share A, mold-board B, and cutter C, made of one piece of sheet metal, the cutter of said plow extending from the point g to the point h, and serving the office of both a cutter and a brace for retaining the curved form of the share and mold-board, as herein described.

2. The process of making the combined share, mold-board, and cutter, consisting in cutting out the plate in the form shown in Fig. 1, forming gage-marks for bending up the cutter between the points g and h, sharpening the edges a and f, bending the plate into a concave form corresponding to that required for the upper surface of the share and mold-board, then heating the mold-board and share portions to a moderate degree and the cutter portion to a comparatively high degree, hottest near the edge f, and while the plate is thus heated bending up the cutter at right angles to the horizontal portion of the mold-board and share, the bending operation being effected gradually, and the contraction of the cutter portion being greater than that of the mold-board and share portions of the blade, all as described.

**234,915. JAMES T. KENNEDY,** Petersburg, Tenn., assignor of one-half to L. V. Fogleman, same place. Plows. Nov. 30, 1880. Filed Oct. 3, 1879.

The mold-board is in two parts, the outer section being adjustable, and secured at any desired width upon a frame which also supports the handle. Shares of different sizes are intended to be used to conform to the enlarged or diminished mold-board.

Claim. In a plow, the standard B, provided with the frame C C' C<sup>2</sup>, having lip N, and the stationary upper mold-board, I, in combination with the lower adjustable mold-board, K, having the cross-piece M secured to its under side by the screw-bolts L L, constructed and operating substantially as and for the purposes set forth.

**247,079. TAPLEY B. MADDUX,** Denton, Tex. Pulverizing Attachments for Plows. Sep. 13, 1881. Filed June 9, 1881.

Claim. The combination of the curved mold-board C, the bar E, which is secured to the upper curved edge thereof, and the upward-projecting and rearward-inclined cutters F, secured at desired angles in said bar, and provided with shoulders I, which rest upon the mold-board, substantially as shown and described.

**252,022. CHARLES DOMSCHKE,** Austin, Tex. Plows. Jan. 10, 1882. Filed Oct. 5, 1881.

Claim. 1. The combination, in a plow, of the share A, concave in line from its point to its top or rear, and the high and narrow mold-

board B, having its surface flat or without curve, as shown and described.

2. The combination, in a plow, of the share A, concave in line from its point to its top or rear, and the high and narrow mold-board, having its surface flat or without curve and forming the projecting corner g, substantially as specified.

**258,806. JOHN QUIN,** Wakeman, Ohio. Plow Mold-Boards. May 30, 1882. Filed Dec. 12, 1881.

Claim. 1. A mold-board having the exterior curvature set forth, in which all the lines of its concave surface radiating from the point O upward, and also forward to the point B, lie in contact with a straight-edge revolved upon the mold-board with the point O as a center, substantially as described, and for the purpose set forth.

2. A mold board having the exterior curvature set forth, in which all the lines of its concave surface radiating from the point O upward, and also forward to the point B, lie in contact with a straight-edge revolved upon the mold-board with the point O as a center, and the end of the mold-board in rear of the line O P, constricted as specified, substantially as described, and for the purpose set forth.

3. The method of constructing a plow mold-board as herein described, consisting in first forming on a block, in the manner set forth, the upper and lower construction-lines, C P B and E O K, and the points O and P, connected by the straight line O P, forming one line of the mold-board, then cutting away said block so that a straight-edge centered at O and revolved from the point P forward to the point B will always be in contact with the face of the block, and finally in constructing the end of the mold-board in rear of the line O P, as specified, substantially as described.

**266,121. EDWIN J. ETZLER,** Tyrone, Pa. Plows. Oct. 17, 1882. Filed June 3, 1882.

Claim. 1. A plow having its mold-board and share separated from each other from front to rear and connected together by the half-tube f, supported by the curved bars e, substantially as herein shown and described, whereby a continuous air-space, e, entirely open at top, is formed between the mold-board and share, as set forth.

2. A plow having an air-space, e, along the joint between the mold-board and share, and a notched or serrated margin of the share along the space, substantially as described.

3. The combination, with the mold-board a and serrated share b, provided with an air-space, e, between them, of the half-tube f, having an inner head, h, tube g, and means, substantially as described, for forcing air through said tube, as specified.

## PLOWS.

| <i>Plate Claim</i>          | <i>Plate Claim</i> | <i>Plate Claim</i>        |         |                             |         |
|-----------------------------|--------------------|---------------------------|---------|-----------------------------|---------|
| Adams, W.                   | 618 358            | Burns, P.                 | 581 345 | Eavenson, J. I.             | 650 372 |
| Adamson, R.                 | 658 376            | Button, W. V.             | 519 323 | Eavenson, J. I.             | 657 376 |
| Albert, F.                  | 514 321            | Butler, M.                | 656 375 | Eberle, L. Sr., E. and I.   | *       |
| Allen, W. K.                | 500 319            | Bvid, J. A.               | 534 327 | Jr.                         | 643 309 |
| Allen, R. J.                | 550 333            | Cadenhead, J. J.          | 523 324 | Edney, H. F.                | 666 380 |
| Allen, S. L.                | 662 378            | Canterberry, S.           | 535 328 | Edwards, A. N.              | 576 343 |
| Anthony, D.                 | 512 320            | Card, J. and Newell, G.   | 503 317 | Eichar, P.                  | 509 319 |
| Atherton, G. M.             | 572 341            | Carlson, T.               | 651 373 | Elcock, J.                  | 664 380 |
| Aughe, S. S.                | 616 357            | Case, J. L.               | 663 379 | Elliot, J. W.               | 602 352 |
| Avery, G. D.                | 491 400            | Cassidy, R. Lamb, T. B.   | 627 362 | Elton, C. A.                | 559 336 |
| Avery, B. F.                | 522 324            | and Vaughan, C. L.        | 533 327 | Emerson, B. K.              | 637 367 |
| Avery, B. F.                | 531 326            | Chafee, V. M.             | 615 358 | Enery, G. and Wilson, A.    |         |
| Avery, B. F.                | 559 336            | Chafee, V. M.             | 604 348 | C.                          | 531 37  |
| Baker, N.                   | 498 315            | Chambers, C. F.           | 520 323 | Esterly, G.                 | 520 32  |
| Baker, H. F.                | 520 323            | Chapin, T. F.             | 659 377 | Evans, C. and O.            | 493 310 |
| Ball, E.                    | 511 320            | Chapman, L.               | 659 377 | Evan, L. G.                 | 521 323 |
| Ball, J.                    | 511 320            | Chapman, L.               | 659 377 | Evarts, W. C.               | 559 236 |
| Ball, E.                    | 518 322            | Chapman, L.               | 659 377 | Farequhar, A. B.            | 600 351 |
| Ball, E.                    | 547 332            | Chenoweth, R. B.          | 491 309 | Feldhans, F.                | 561 337 |
| Ball, A.                    | 670 382            | Chenoweth, R. B.          | 497 314 | Felton, S.                  | 494 312 |
| Ball, A.                    | 675 385            | Chevalier, F.             | 624 361 | Fenner, R. R.               | 575 343 |
| Ball, J.                    | 577 343            | Chichester, H. S.         | 540 329 | Fenner, R. R.               | 603 352 |
| Ball, J.                    | 579 340            | Christman, A. G.          | 672 383 | Ferguson, D. P.             | 641 368 |
| Ball, E. Jr.                | 558 335            | Christman, A. G.          | 660 377 | Fish, J.                    | 556 335 |
| Barger, N. S.               | 669 382            | Chabb, A. L.              | 661 378 | Fleischmann, C. L.          | 554 334 |
| Barry, M.                   | 612 350            | Clark, E. B.              | 535 328 | Flippen, C. W.              | 631 364 |
| Bartlett, G.                | 513 320            | Cleasy, G.                | 508 319 | Foster, N. II.              | 666 381 |
| " " (R)                     | 513 320            | Cloud, J. C.              | 516 321 | Forter, C.                  | 563 338 |
| Bates, C.                   | 669 382            | Cochran, R. F.            | 670 387 | Foster, A. G. W.            | 625 361 |
| Bates, C.                   | 602 352            | Coggeshall, W.            | 542 330 | Fowler, J.                  | 549 333 |
| Beach, W.                   | 494 312            | Cole, G. W.               | 568 339 | Frank, W.                   | 545 331 |
| Beam, H. T.                 | 570 349            | Condo, D.                 | 667 381 | Franklin, F. M.             | 574 342 |
| Beiggs, J. R.               | 544 331            | Conklin, J. H.            | 514 321 | Franklin, A.                | 581 345 |
| Begon, L.                   | 661 378            | Cook, L. and Bever, J. T. | 531 326 | Franklin, F. M.             | 585 347 |
| Bedoller, C.                | 541 329            | Cook, E. S.               | 602 352 | Franklin, A. and F. M.      | 587 347 |
| Beidler, C.                 | 551 333            | Cooley, W.                | 554 334 | Freeman, L.                 | 623 360 |
| Beidler, C.                 | 676 356            | Cooley, S.                | 597 350 | French, C. M.               | 569 340 |
| Bell, W. N.                 | 628 363            | Cottman, T.               | 549 333 | Fulton, D.                  | 586 347 |
| Belt, A. C.                 | 560 336            | Cox, C. G.                | 617 357 | Gale, H.                    | 584 346 |
| Benkelman, A.               | 537 328            | Crenshaw, J. B.           | 657 376 | Gale, H.                    | 615 357 |
| Bergstresser, E. L.         | 560 337            | Cromwell, J. and H. F.    | 504 318 | " (R)                       | 615 357 |
| Bettice, M. S.              | 661 378            | Cromwell, H. F.           | 532 327 | Gale, H.                    | 642 369 |
| Bidwell, J. C.              | 610 355            | Cummings, J. G.           | 525 325 | Gallatin, J.                | 507 318 |
| Billing, J. O.              | 590 348            | Cummins, A. G. and J. R.  | 575 343 | Garrett, C. and Cottman, T. | 523 324 |
| Billups, C.                 | 631 304            | Cunningham, G. W.         | 537 328 | Ganter, F.                  | 655 375 |
| Black, W.                   | 508 319            | Curtis, S.                | 572 341 | Gaylord, C. H. and Ayers,   |         |
| Blanchard, J.               | 593 349            | Dahl, M. K.               | 583 349 | E. M.                       | 622 360 |
| Blatchly, N.                | 518 322            | Dahl, A. K.               | 609 355 | George, J.                  | 548 332 |
| Blodgett, C.                | 540 329            | Davidson, E.              | 539 326 | George, J.                  | 672 384 |
| Blomsten, B. C.             | 586 347            | Davis, G.                 | 493 310 | Gibbs, J.                   | 499 316 |
| " " (R)                     | 586 347            | Davis, J. W.              | 662 379 | Gibbs, J.                   | 550 333 |
| Bogenrief, S. H. and Patti- |                    | Dawson, W. W.             | 640 368 | Gibbs, L.                   | 556 335 |
| son, W.                     | 642 369            | Deats, J.                 | 495 313 | Gibbs, G.                   | 565 338 |
| Bonander, A. J.             | 603 352            | " (R)                     | 495 313 | Gibbs, R.                   | 585 346 |
| Bond, J. L.                 | 592 349            | Deats, J.                 | 500 316 | Gibbs, M. L.                | 587 347 |
| Bowen J. D.                 | 636 366            | Deats, J.                 | 502 317 | " " (R)                     | 587 347 |
| Bradley, B. C.              | 619 358            | Deere, J.                 | 542 332 | Gibbs, M. L.                | 594 350 |
| Brewer, G. T.               | 562 357            | Dement, J.                | 546 332 | " " (R)                     | 595 350 |
| Brinly, T. E. C.            | 536 328            | Denise, S. T.             | 570 341 | Gibbs, L.                   | 646 370 |
| Brinly, T. E. C. and Dodge, |                    | Dennett, L. B.            | 550 333 | Gibbs, L.                   | 648 371 |
| J. G.                       | 542 330            | Dick, J. M.               | 543 330 | Gill, J. L.                 | 522 324 |
| Brinly, T. E. C.            | 551 333            | Dickie, R. and Johnston,  |         | Gilliam, J. W.              | 577 344 |
| " " (R)                     | 551 333            | H. K.                     | 585 346 | Gilmer, J.                  | 603 352 |
| Brinly, T. E. C.            | 559 336            | Dickson, J.               | 528 325 | Gilmore, A.                 | 566 339 |
| Brinly, T. E. C.            | 576 343            | Dietsch, E.               | 588 348 | Gilon, T. and Martin, N.    | 551 333 |
| Brinly, T. E. C.            | 582 345            | Dodge, J. G.              | 561 337 | Glidden, C.                 | 553 234 |
| Brinly, T. E. C.            | 588 348            | Dodge, G.                 | 550 372 | Godfrey, H. C.              | 604 353 |
| Brinly, T. E. C.            | 589 348            | " " (R)                   | 650 373 | Goodyear, A.                | 648 372 |
| Brinly, T. E. C.            | 606 353            | Dolhaner, J.              | 498 315 | Goodyear, A.                | 651 374 |
| Brinly, J. L.               | 663 379            | Downs, J. W.              | 601 352 | Goodyear, A.                | 658 377 |
| Britton, W.                 | 593 349            | Dozier, M. D.             | 630 364 | Gordon, C. M.               | 585 347 |
| Brous, T. M.                | 622 360            | Dudley, J.                | 495 313 | Graham, R. A.               | 519 343 |
| Brown, R. A.                | 609 355            | Dugdale, C. R. and Breed, |         | Grant, C. W.                | 560 339 |
| Bruce, J. B.                | 660 377            | D.                        | 617 357 | Green, L.                   | 535 328 |
| Buch, J.                    | 495 313            | Duncan, J. C.             | 557 335 | Green, L.                   | 544 331 |
| Buchanan, J. M.             | 676 336            | Durfee, H. B.             | 573 342 | Green, L.                   | 547 332 |
| Burch, N.                   | 605 353            | Durfee, H. B.             | 580 345 | Gregory, S.                 | 502 317 |
| Burns, P. H. and Mc-        |                    | " " " (R)                 | 581 345 | Greif, J. V.                | 557 335 |
| Elbany, W. G.               | 642 369            | Dutcher, J.               | 503 317 | Grimes, C. T.               | 570 341 |

## PLOWS.

| <i>Plate Claim</i>                                     | <i>Plate Claim</i>                           | <i>Plate Claim</i>              |
|--|--|---------------------------------|
| Grover, M. 525   | Jory, J. W. 325                              | Meikle, T. and Coleman, B. 652  |
| Grover, M. 541   | Judd, J. L. 329                              | Meikle, T. 667                  |
| Gum, J. S. 664   | Judson, A. C. 379                            | Melancon, E. D. and Ay-         |
| Hackman, A. 655  | Jullier, E. 275                              | rand, J. H. Sr. 668             |
| Haege, J. 543  | Kee, C. T. 330                               | Mendenhall, M. D. 558           |
| Haege, J. 556  | Kellogg, A. B. 335                           | Meritt, R. C. 667               |
| Hafner, J. 663   | Kellogg, K. 379                              | Middleditch, J. 621             |
| Haight, D. B. 515                                      | Kelly, E. 331                                | Miller, T. 494                  |
| Haiman, E. 591   | Kennedy, M. 348                              | " (R) 312                       |
| " " (R) 591  | Kern, I. R. 348                              | Miller, T. 494                  |
| Hall, S. 514 <sup>12</sup>                             | Kern, I. R. 321                              | P. G. 499                       |
| Hall, J. S. 535  | Keins, H. O. 328                             | Miller, P. G. 633               |
| Hall, J. S. 508  | Kessel, P. 340                               | Milroy, J. W. 571               |
| Hall, J. D. 584  | Kessler, P. 340                              | Minor, J. O. 617                |
| Hampé, A. 616  | Killam, H. 358                               | Mitchell, H. 545                |
| Hampé, A. 616  | Kinney, H. R. 357                            | Mitchell, J. J. 610             |
| Hanson, C. 678   | Kinstler, J. 387                             | Mitchell, T. L. H. 613          |
| Harper, D. 542   | Klineline, J. W. 330                         | Mock, C. F. 676                 |
| " " (R) 543  | Koppenheffer, C. 339                         | Moore, J. 507                   |
| Harell, W. K. 600                                      | Krug, H. Sr. 351                             | Moore, J. B. 508                |
| " " (R) 600  | Kuenzel, J. 351                              | Moore, G. 564                   |
| Harris, Z. 492   | Lane, J. Jr. 309                             | Moore, G. 630                   |
| Harris, J. 553   | Lane, J. 334                                 | Mooers, J. 510                  |
| Hartpence, S. and Bowne, J. D. 500                     | " " (R) 316                                  | Morris, D. 586                  |
| Hartzell, J. S. 629                                    | Lane, J. Jr. 316                             | Morrison, W. 517                |
| Hartzell, C. 574                                       | " " " (R) 313                                | Morrison, W. 541                |
| Hastings, P. 496                                       | Lane, J. 342                                 | Morrison, S. D., D. A. and      |
| Haven, G. S. 644                                       | Lane, J. 614                                 | J. B. 596                       |
| Heald, R. K. 678                                       | Lane, J. 945                                 | Newbold, C. 350                 |
| Heckendorf, J. 524                                     | Laceh, S. J. 305                             | Newbold, C. 350                 |
| Heckendorf, J. 574                                     | Lee, W. A. 332                               | Nicholson, W. 530               |
| Hedrick, G. L. 629                                     | Leland, A. 331                               | Nisbet, S. 494                  |
| Hefley, G. Conrad, S. and Wigle, J. 517                | Lewis, J. W. 382                             | Nitschmann, F. 644              |
| Hege, C. A. 618  | Liles, L. W. 322                             | Nitschmann, F. 671              |
| Hedges, D. 583   | Ling, L. 325                                 | Nooris, J. B., Bowers, M. 355   |
| Hendley, J. W. 632                                     | Lockhart, T. S. and J. A. 380                | Norton, J. B. 619               |
| Henry, W. 546  | Lockett, N. 364                              | Norton, J. B. 500               |
| Hinds, W. 549  | Lockwood, N. S. and Winn, Hoover, W. U. 571  | OdeLL, J. K. and Little, W. 316 |
| Hoagland, J. N., Cumming, H. L. and Fallman, F. G. 670 | Lies, L. W. 382                              | S. 589                          |
| Hoke, D. 528   | Ling, L. 325                                 | Ogle, W. 506                    |
| Hoke, I. P. 677  | Lockhart, T. S. and J. A. 380                | Ondendorph, J. Jr. 644          |
| Halloway, P. 631                                       | Lockett, N. 364                              | Oliver, J. 592                  |
| Hoover, W. U. 571                                      | Lockwood, N. S. and Winn, Hunt, L. 575       | Oliver, J. 600                  |
| Horney, S. Jr. 519                                     | Lies, L. W. 323                              | Oliver, J. 351                  |
| Howell, J. W. D. and Sipe, J. 517                      | Ling, L. 322                                 | Oliver, J. 608                  |
| Huber, S. 632  | Ling, L. 265                                 | Oliver, J. 354                  |
| Hubley, H. H. 623                                      | Lowe, J. W. 300                              | Oliver, J. 492                  |
| Hultett, S. 528  | McCoold, W. C. 325                           | Oliver, J. 309                  |
| Hullert, S. 569  | McCormick, S. 349                            | Oliver, J. 632                  |
| Hull, N. 505   | McCormick, S. 318                            | Oliver, J. 632                  |
| Hummer, H. A. 532                                      | " " " (R) 333                                | Olson, H. 618                   |
| Humphrey, D. F. 542                                    | McCune, W. H. 330                            | Ormitton, J. 501                |
| Hunt, L. 575   | McKinley, J. 342                             | Ormitton, J. 514                |
| Hunter, W. L. and Gardner, A. 518                      | McMillen, R. 322                             | Ormitton, J. 525                |
| Hunter, C. E. 645                                      | McNutt, J. C. and Furman, Ingalls, A. P. 572 | Oraon, I. M. 623                |
| Ingersoll, C. B. 525                                   | A. B. 341                                    | Otrick, N. C. 665               |
| Jacobs, J. 497   | " " " " (R) 324                              | Osburn, O. 578                  |
| Jacques, A. C. 569                                     | McWane, C. P. 314                            | Osburn, O. 589                  |
| Jarrell, W. 538  | Mahoney, J. W. 342                           | Overshiner, G. J. 627           |
| Jefferson, F. E. 649                                   | Mann, H. F. 328                              | Pagett, W. F. 578               |
| Jennings, F. K. 648                                    | Marsch, 2nd, C. 372                          | Painter, W. 636                 |
| Jewett, B. F. 504                                      | Martin, H. A. 371                            | Palmer, L. E. 561               |
| Jenkins, J. E. 502                                     | Martin, J. 318                               | Parker, J. 555                  |
| Johnson, B. 497  | Masson, J. 337                               | Parlett, J. A. and Thomp-       |
| Johnson, J. 513  | Matteson, D. C. and Wil-                     | son, J. 539                     |
| Johnson, A. W. 624                                     | hamson, T. P. 320                            | Purish, W. 601                  |
| Johnson, W. S. 652                                     | " " " " (R) 301                              | Putney, J. P. 662               |
| Jones, W. T. 532                                       | Matthews, E. G. 327                          | Peacock, A. and S. 521          |
| Jones, R. 543  | Matthews, J. M. 330                          | Peek, J. A. 677                 |
| Jones, M. R. 590                                       | May, H. H. 348                               | Peet, R. 558                    |
| Jones, H. 711  | May, J. M. 355                               | Penning, M. 597                 |
| Jones, T. B. 637                                       | May, E. 367                                  | Pentreach, J. 628               |
| Jones, T. F. 665                                       | Meagher, E. D. 380                           | Peters, D. and Pauly, J. W. 556 |

| Plate                                      | Claim | Plate | Claim                      | Plate | Claim |
|--|-------|-------|----------------------------|-------|-------|
| Phillips, O. F.                            | 646   | 371   | shaw, C. W.                | 534   | 327   |
| Piatt, J. J.                               | 639   | 367   | Shunk, A. Sr.              | 563   | 338   |
| Pierpont, J.                               | 646   | 332   | Simonds, F.                | 674   | 384   |
| Pinney, N. G.                              | 666   | 380   | Sinclair, H. B.            | 515   | 321   |
| Plank, J.                                  | 499   | 316   | Skinner, J. B.             | 557   | 335   |
| Platt, N.                                  | 547   | 332   | Small, W.                  | 502   | 317   |
| Pope, S. W.                                | 627   | 362   | Smith, J. C.               | 500   | 316   |
| Posey, J.                                  | 639   | 367   | Smith, M.                  | 593   | 317   |
| Prentiss, S. and Flint, G.                 | 572   | 341   | Smith, A.                  | 509   | 319   |
| Preston, A.                                | 539   | 326   | Smith, D. H. and E. E.     | 534   | 327   |
| Price, W.                                  | 606   | 353   | Smith, J.                  | 536   | 328   |
| Prouty, D. and Mears, J.                   | 408   | 315   | Smith, G. K. and Strasser, |       |       |
| Prouty, D. and Mears, J.                   | 502   | 317   | J.                         | 560   | 339   |
| Prouty, D. and Mears, J.                   | 504   | 318   | Smith, H.                  | 580   | 348   |
| Prouty, D.                                 | 513   | 320   | Smith, A. C.               | 590   | 348   |
| Prutzman, J. P., J. E. and McIntyre, J. P. | 626   | 302   | Smith, H. B.               | 599   | 351   |
| Purefoy, A. F.                             | 674   | 384   | Smith, H. D.               | 615   | 357   |
| Putnam, T. E.                              | 601   | 352   | Smith, J. A.               | 649   | 372   |
| Quigley, T. B.                             | 597   | 319   | Smith, G. E.               | 668   | 381   |
| Quigley, T. B. and Hall, H.                | 511   | 320   | Smooth, J. Sr.             | 629   | 363   |
| Quin, J.                                   | 676   | 318   | Soule, S. W.               | 607   | 354   |
| Rakestraw, Y.                              | 571   | 341   | Sparce, M. P.              | 620   | 363   |
| Rall, W.                                   | 601   | 352   | Speer, W. W.               | 655   | 375   |
| Ream, G. W.                                | 588   | 348   | Speer, W. W.               | 548   | 332   |
| Reaney, W.                                 | 529   | 226   | Spielman, G.               | 502   | 337   |
| Reed, J. W.                                | 605   | 353   | Sprague, H.                | 519   | 322   |
| Reese, G. and P.                           | 644   | 369   | Spratt, W. S.              | 548   | 332   |
| Reich, J.                                  | 634   | 366   | " [R]                      | 548   | 332   |
| Renak, F.                                  | 612   | 356   | Sprouse, W. T.             | 501   | 317   |
| Reynolds, I.                               | 521   | 323   | Stansbury, T. A.           | 550   | 333   |
| Rich, J.                                   | 510   | 322   | Starke, P. H.              | 530   | 328   |
| Rich, J.                                   | 524   | 324   | Starke, P. H.              | 508   | 340   |
| Richards, M. and Vandegrift, J.            | 554   | 334   | Starke, P. H.              | 571   | 341   |
| " " " " (R)                                | 554   | 334   | Starke, P. H.              | 595   | 350   |
| Richard, A.                                | 670   | 382   | Starke, P. H.              | 605   | 353   |
| Rigell, M.                                 | 582   | 345   | Stephenson, S. S.          | 563   | 338   |
| Riggan, J. H.                              | 641   | 369   | Stephenson, W.             | 577   | 343   |
| Ringen, G.                                 | 563   | 338   | Stewart, S. M.             | 628   | 363   |
| Ringen, G.                                 | 620   | 359   | Stoker, N. W.              | 592   | 349   |
| Roberts, S. L.                             | 510   | 320   | Story, J. T.               | 542   | 334   |
| Robinson, N.                               | 497   | 314   | Straight, H. D.            | 594   | 349   |
| Robinson, N.                               | 579   | 344   | Stride, F.                 | 624   | 360   |
| Robinson, J. S. and E. C.                  | 658   | 370   | Stride, F.                 | 614   | 357   |
| Robinson, J. S. and E. C.                  | 670   | 383   | Swartz, D.                 | 647   | 371   |
| Rockwood, L. O.                            | 557   | 335   | Swartz, D. and S.          | 518   | 322   |
| Roden, A.                                  | 536   | 328   | Sweeny, R.                 | 520   | 323   |
| Rogers, H. D.                              | 539   | 329   | Sweitzer, J.               | 493   | 311   |
| Roles, R.                                  | 584   | 346   | Swenson, N. Lindquist      | 538   | 329   |
| Rose, M. P.                                | 595   | 350   | Tavenner, E. C. and        | 669   | 382   |
| Ross, M.                                   | 620   | 359   | Nesmith, O.                | 521   | 323   |
| Ross, M.                                   | 645   | 370   | Taylor, C. B.              | 496   | 313   |
| Ross, M.                                   | 674   | 384   | Taylor, A.                 | 496   | 314   |
| Ruch, G. W.                                | 610   | 355   | Taylor, H.                 | 501   | 317   |
| Ruch, J.                                   | 633   | 365   | Taylor, A.                 | 510   | 319   |
| Rulofson, I.                               | 529   | 326   | Taylor, A. C.              | 673   | 384   |
| " " " (R)                                  | 530   | 329   | Tegue, A.                  | 500   | 318   |
| Rulofson, I. and DeGarmo, D.               | 539   | 329   | Teague, A.                 | 579   | 344   |
| St John C.                                 | 553   | 334   | Jeff, J. S.                | 506   | 318   |
| Salsbury, G. M. and G. S.                  | 544   | 331   | Tesser, M.                 | 579   | 344   |
| Sample, J. R.                              | 621   | 359   | Thompson, T.               | 526   | 325   |
| Sanders, N.                                | 671   | 383   | Thompson, S. R.            | 573   | 341   |
| Sanford, F.                                | 527   | 326   | Thompson, R. B.            | 634   | 365   |
| Soyer, S. D.                               | 583   | 349   | Tingley, J. M.             | 611   | 355   |
| Seaman, J.                                 | 638   | 367   | Titus, W. D.               | 566   | 339   |
| Seaman, J.                                 | 652   | 374   | Tomlinson, J.              | 545   | 351   |
| Selick, H.                                 | 580   | 345   | Towers, W. M.              | 635   | 366   |
| Selick, H.                                 | 605   | 353   | Towers, W. M.              | 639   | 368   |
| Sayler, B.                                 | 516   | 322   | Urie, J.                   | 56    | 339   |
| Shaffer, L. W.                             | 541   | 329   | Urie, J. Sr.               | 603   | 352   |
| Shearer, S.                                | 411   | 320   | Utley, G.                  | 613   | 356   |
| Shelton, G.                                | 599   | 351   | " [R]                      | 649   | 372   |
| " " (R)                                    | 599   | 351   | Vandegrift, J.             | 569   | 340   |
| Shepard, J.                                | 575   | 343   | Vandegrift, J.             | 561   | 337   |
| Shickel, J.                                | 627   | 362   | Vaughan, S. O.             | 562   | 337   |
| Shipp, J. W. and Cren-                     |       |       | Vaughn, J. B.              | 533   | 327   |
|  |       |       |                            | 538   | 329   |
|  |       |       |                            | 538   | 326   |

## PLOWS.

| <i>Plate</i>              | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>    | <i>Plate</i> | <i>Claim</i> |
|---------------------------|--------------|--------------|-----------------|--------------|--------------|
| Willson, L. R.            | 598          | 351          | Woodcock, B.    | 510          | 320          |
| Wilson, L. S.             | 596          | 350          | Woodward, J.    | 517          | 322          |
| Winpee, G. W. and W. F.   | 643          | 369          | Woodward, L. E. | 651          | 373          |
| Winslow, T.               | 548          | 332          | Woodward, I. F. | 657          | 376          |
| Winston, R. B.            | 526          | 325          | Wright, A.      | 582          | 345          |
| Witherow, S.              | 512          | 320          | Wright, S. D.   | 614          | 356          |
| Wolf, L.                  | 538          | 328          | Wright, J. W.   | 624          | 361          |
| Wolf, D.                  | 606          | 380          | Wyche, W. E.    | 522          | 324          |
| Wood, J.                  | 492          | 310          | Wyche, W. E.    | 522          | 324          |
| Wood, D. and Byington, A. | 534          | 327          | Wyman, G. D.    | 605          | 353          |

## PLOWS.

**CHARLES NEWBOLD**, Burlington, N.  
J. Plows. June 26, 1797.

No Claim. The plow to be (except the handles and beam) of solid cast iron, consisting of a standard, sheath and mold plate. The sheath serves a double purpose of colter and sheath and the mold plate serves for a share or point and mold board, that is to cut and turn the furrow.

**CHARLES NEWBOLD**, Burlington, N.  
J. Plows. June 26, 1797.

No Claim.

A. the beam.

B and C, the handles.

D. the mold board.

E. the landside.

F, the share.

**RICHARD B. CHENOWETH**, Baltimore,  
Md. Plows. Nov. 25, 1808.

No Claim. The beam, handles, and sword, all of wood, are nearly similar in their construction to those of the common plow. The landside and mold board, both of cast iron, are connected with wrought screws, and there is attached to the upper side of the moldboard a share, which in its shape differs from any other now in practice, it being fastened on the upper side, of the mold board with screws, the point doubling over but running even with the landside, and leaving a hollow under the mold board, so that small stones, will pass without interruption. It is made of wrought iron whose edge is steeled, and weighing from four to eight pounds, according to the size of the plow.

In Pennsylvania, Maryland, and Virginia, particularly in Maryland, the farmers prefer a plow of the above construction for deep plowing, and its great use is that any number of shares will fit one plow, besides, it can be kept in repair at less expense than any other.

To the end of the share, but through the beam, the colter is attached, which in its make differs very little from the one commonly used. The clevis varies in its form, according to the fancy of the owner of the plow.

**GEORGE D. AVERY**, Wood Co. Va.  
Plows. Dec. 28, 1818.

Claim. 1. The body of the plow, before specified, together with its use and connection with other parts of the plow, as my invention and improvement.

2. The improvement of the mold-board, before specified, together with its use and connection, with other parts of the plow, as my invention and improvement.

3. The landside before specified together with its use and connection with other parts of the plow, as my invention, and improvement.

4. The top before specified together with its use and connection with other parts of the plow, as my invention and improvement.

5. The brace bar before specified together with its use and connection, with other parts of the plow, as my invention and improvement.

6. The share before specified together with its use and connection with other parts of the plow, as my invention and improvement.

7. The manner of securing the beam to the body of the plow, before specified and described as my invention and improvement.

8. The beam before specified together with its use and connection with other parts of the plow, as my invention and improvement.

**STEPHEN McCORMICK**, Farquier, Co.  
Va. Plows. Feb. 3, 1819.

No Claim. This plow has a plate of wrought iron added to a bar which forms the landside, point, and share. There is a mortise hole through the share near the bar to receive the sheath and brace.

The mold board is made of cast iron, and is so constructed as to fit on the share end. It has a perpendicular landside of ten inches or less, (agreeable to the size of a Plow,) which has a shoulder, that butts against the sheath. The front part of the mold board has a gradual rise to the highest part of the lower edge of the mold board, and has a circular shape which forms a gradual rise to a right angle to the landside. The upper edge widens gradually until it hangs over the heel or bottom part six or eight inches. The mold board is confined to the sheath by two rivets and by two to the stilt. The shares is confined to the mold-board by a brace passing in front of the sheath through the wood or by this side of an iron beam, which is fastened by a screw; also, a screw passing through near the edge of the mold-board and share. The head is confined by a screw to the stilt.

The beam is made of iron ; is about six feet long, with a considerable curve, two inches and a half wide, and one and an eighth thick, which is large enough for three horses. The front end has holes to admit an open ring, or clevis; also, a hole through the other end, where it comes into the stilt, which is confined by a rivet pin. This beam is let into the top of the sheath, which is made of wood, and is confined by a cap of thin iron. The beam has a band of iron about five inches in front of the sheath, which is large enough on the under edge of the beam to admit a hook of one end of a brace which passes through the sheath and stilt near the heel of the plow, which is fastened by a screw. The stilts are made of wood, about five and a half feet long.

**Z. HARRIS**, Hartford, N. Y. Plows. Mar.  
17, 1819.

No Claim. This plow is different from all other plows, inasmuch as the landside is com-

posed of three plates, which are fixed over each other, and the lower or under part of the plow is composed of two plates, with other pieces combined and connected, as herein-after described. The first landside-plate and the under plate are cast together, each in their proper direction or position, which is nearly at right angles. The lower part of the landside is so formed as to be of double the thickness of the upper part, so that the upper part may receive the cutter, which fits the sunken part and rests on the projecting thickness, which forms an angle of about twelve degrees, rising toward the back of the plow. At the upper part of said angular line there is a groove or cavity with a number of indents for the purpose of receiving the hooked part of the cutter, by which it may be extended at pleasure when the wearing of the cutter requires it. The cutter is a plate of steeled iron, formed to the shape of the plow in front and of a thickness so as to fill up the sunken part before described. The under side of the upper part of the cutter extends in a narrow form, having a hook at the end, which bends downward and catches in the indents before mentioned. When the last-mentioned plate or cutter is in its place it causes the surface of the landside to be flush and even. Over the above-described plates is placed another plate, which may be called the "shelter-plate," as it receives all the wear of the landside. It extends the whole length of the plow and covers the under structure. The front part partakes of the shape of the cutter and recedes a little from it. It is fastened either by screws or bolts, which make the whole landside firm and secure. The plate of the under side of the plow, which is cast with the first plate of the landside, has on its upper surface an indented groove, the indents of which receive the hooked part of a straight bar, which lies fixed in the groove and projects in front of the plow and forms what is called the "nose." This bar, as it wears in plowing, may be extended and turned at pleasure. On the right-hand side of the above-mentioned groove there is a rising ratchet or toothed edge, the indents of which prevent the under cutter from shifting its situation when in the act of plowing. The under cutter is formed of a proper shape to suit the under part of the plow, and is made either of wrought-iron steeled or entirely of iron. The inner side is bent downward for the purpose of catching in the ratchets or teeth, before mentioned, when wanted to be brought forward when it wears in plowing. Toward the inner side of said cutter there is a long perforation for the purpose of admitting through it the staples rising from the cast plate, which fastens the cutter by a key.

The mold-board is a separate piece, and made of cast-iron, having proper staples or bolts in their proper situations for the purpose of fixing it by keys or otherwise, or it may be fixed by screws.

This new construction of a plow may be adapted to any plow already in use, and the

cutters may be made either of steel, wrought-iron, or cast-iron.

**JETHRO WOOD**, Poplar Ridge, N. Y.  
Plows. Sep. 1, 1819.

Claim. 1. Constructing the part of the plow heretofore and to this day generally called the "mold-board," in the manner hereinafter mentioned.

2. The mold-board, which is the result of profound reflection and of numberless experiments, is a sort of plano-curvilinear surface, as hereinbefore stated, having the following bearings and relations:

3. An exclusive privilege in the inventions and improvements made by him in the construction of the cutting-edge of the mold-board, or what may be called in plain language "the plowshare."

4. The exclusive right of securing the handles of his plow to the mold-board and landside of the plow by means of notches, ears, loops, or holders cast with the mold-board and landside, respectively, and serving to receive and contain the handles without the use of nuts and screws.

5. An exclusive right to his invention and improvement in the mode of fitting, adapting, and adjusting the cast-iron landside to the cast-iron mold-board.

6. The right of varying the dimensions and proportions of the plow and of its several sections and parts in the relation of somewhat more and somewhat less of length, breadth, the thickness, and composition according to his judgment or fancy, so that all the while he adheres to his principle and departs not from it.

**JOHN NASH**, Middlebury, Ohio. Plows.  
Oct. 14, 1823.

Claim. The manner of putting this plow together by the loops or hinge, as also the shoulder and mortise or box, and likewise the sword or edge, in lieu of a colter.

**C. AND O. EVANS**, Philadelphia, Pa.  
Plows. April 14, 1825.

Claim. A self-sharpening share made of one piece and secured on the under part of the mold-board.

**GIDEON DAVIS**, Georgetown, D. C.  
Plows. Oct. 1, 1825.

Claim. 1. Believing that this mode or rule of attaining a proper shape for the molding part, or what is commonly called the "face" of the mold-board of the plow, is an original invention of my own not heretofore used or ever known, and that it is a useful and important improvement in the plow, claim the whole exclusive privilege of making, using, and vending the same to others to make, use and vend, and that in all the variety of simple changes that may be made conformably to the rule heretofore described.

2. The mode of connecting the landside to the mold-board by a rib, as here described.

with the jog or rest on the landside to sustain the handle, and the extension of the standard or fore and top part of the mold-board forward so much further under the beam than is usual, all of which I believe tend much to the improvement of the plow, and which I claim the use and control of, as aforesaid.

3. My mode of making and manner of applying and using the share of the plow, as here described, whether made of wrought or cast iron.

4. Believing that the shapes for the throat or fore part and hind part of the mold-board have not been known or used before I applied them to use, and that they are valuable improvements in the construction and use of the plow; claim the whole and exclusive right of the use and control of them to use and vend to others, &c.

5. Constructing the shoe so that it will protect both the side and the bottom of the landside, and my mode of making the cast-iron shoe in metallic molds.

6. My mode of applying the beam to the standard, and my manner of raising and lowering it on the standard, and my mode of fastening the end of the beam on the side of the handle, together with that of adjusting the fore end of the beam by turning it to the right or left, and of making the hind end of it fast to the handle higher or lower, and the application of the blocks between the beam and the standard, and the beam and the handle.

7. The mode of applying the colter to the side of the beam instead of through a mortise in it, and more especially that of the particular manner of fastening the sward-colter to the plow and using it so as not to cut the sod until the point of the share has raised it up so as to have it on a strain.

**STEPHEN McCORMICK**, Fauquier Co., Va. Plows. Jan. 28, 1826.

Claim. 1. The share, &c., the bar made thick at the bottom and thin on the top edge, putting a piece from the point of the share or plow up to the point of the mold-board, and the application of the improvement in the shoe to raise and lower behind at pleasure.

2. The method in which the mold-board is wrought, the shape of its face or mold part, the curve or projection over toward the landside, the long hole through its top for the beam-bolt, the catch at the bottom to fasten it to the share, and the concave groove for the handle.

3. The structure of the fore part of the mold-board for the cast share and the self-sharpening point, the portion of the brace-bar between the landside and the mold-board for the point to rest on and to fasten to, the length of the point and the manner in which it is fastened to the brace-bar, and the shape of the share for the point to rest upon.

4. The shape of the sword with two edges, and the manner in which it is fastened to the side of the beam with a staple.

5. The stock, the method of fastening the handle and beam together with a staple, fitting the handle in the concave groove, and adjusting the beam on the top of the mold-board, all of which is fully specified in the foregoing.

**STEPHEN McCORMICK**, Fauquier Co., Va. Plows. Jan. 28, 1826. Reissued Oct. 22, 1828.

Claim. 1. The share, &c., the bar made thick at the bottom and thin on the top edge, putting a piece from the point of the share or plow up to the point of the mold-board, and the application of the improvement in the shoe to raise and lower behind at pleasure.

2. The method in which the mold-board is wrought, the shape of its face or mold part, the curve or projection over toward the landside, the long hole through its top for the beam-bolt, the catch at the bottom to fasten it to the share, and the concave groove for the handle.

3. The structure of the fore part of the mold-board for the cast share and the self-sharpening point, the portion of the brace-bar between the landside and mold-board for the point to rest on and to fasten to, the length of the point and the manner in which it is fastened to the brace-bar, the shape of the share for the point to rest upon.

4. The shape of the sword with two edges, the manner in which it is fastened by the side of the beam with a staple.

5. The stock, the method of fastening the handle and beam together with a staple fitting the handle in the concave groove, and adjusting the beam on the top of the mold-board, all of which is fully specified in the foregoing.

**ROBERT SWEENEY**, Warren, Co. Ohio. Plows. May 18, 1827.

No Claim. The mold being of cast iron, with a square shoulder to rest on the sheath, with two square countersunk holes, through which screws are placed, the one fastening the mold to the sheath and the other fastening the share to the mold. On the hinder part of said mold, there is a limb projecting from the inside, through which a screw also passes to the share, making fast the hinder part of said mold to the hinder part of said share. There are also two holes through the mold, through which rivets are placed fastening said mold to the sheath. There also two other holes through which rivets are placed fastening said mold to the right hand handle of said plow.

The share is made of wrought iron a wrought landside with steel on the heel and edge and also a steel point extending back, covering the point of the mold to prevent roots, &c., from lodging under said mold. There are also two holes in the share, one before and the other back, to receive the screws from the mold aforesaid.

The cutter of said plow is made of wrought iron, with a steel edge, setting closely to the

mold, behind a small shoulder, on said mold within half an inch of its point, and made fast to the share by a hook welded on its inside the upper end of which penetrates the beam and is made fast by a screw on top. There is, further more an iron bolt passing through the beam and sheath, bracing the whole together.

The beam handles and sheath of said plow are constructed similar to those of other plows now in use the improvement here claimed, as aforesaid, differing from other plows now in use particularly in the cutter, which is entirely new, the mold differing also from other plows now in use by having the screw behind and in the sheath, before described differing also in the manner in which it receives the cutter. The shape of the mold also differs from others in use, but which difference is indescribable.

**WILLIAM BEACH**, Philadelphia, Pa.  
Plows. June 27, 1827.

Claim. The points and shares whether connected or detached, may be made of either cast or wrought iron.

**TIMOTHY MILLER**, Pittsburg, Pa.  
Plows. Oct. 23, 1829.

Claim. The front curved edge of the mold-board, or standard between the upper part of the share, and the beam, the object of which is to make the plow clean itself.

**TIMOTHY MILLER**, Pittsburg, Pa.  
Plows. Oct. 23, 1829. Reissued July 17, 1835.

Claim. The front curved edge of the mold board or standard, between the upper part of the share and the beam, the object of which is to make the plow clear itself.

**SAMUEL NISBET**, Toboyne Township, Pa. Plows. May 25, 1830.

No Claim. This plow consists of the following principal parts viz: first the mold board and sheath; second, the wrought iron share; third, the colter; fourth, the beam and handles.

First. The mold board and sheath are made cast iron and cast together solid. There is a tenon in the lower part of the sheath, that sets into the socket of the share. The sheath or mold board extends up through the beam, and has two projections cast on it, one on each side, on which the beam rests. A bar extends from the sheath on the land side to the molds board on the inner side, which acts as a stay and support to both the sheath and mold-board, and is cast solid with them.

Second. The shares is made of wrought-iron, and is of the common form and size.

Third. The colter is made of wrought iron and of the common shape and size.

Fourth. The beam and handles are made of wood and of the common shape and size.

Claim. The construction of the mold board and sheath, as before described.

**SAMSON FELTON**, Huntingdon, Pa.  
Plows. Nov. 1, 1830.

Claim. The manner of making the share and mold board, as before described, the plate or floor which connects them together, the cross-bar, the saddle or seat on which the beam rests, also the bolt passing through the beam and connected with the cross-bar of the share, and landside having a thumbscrew on top for regulating it.

**EDMUND M. WAGGONER**, Adair Co., Ky. Plows. Jan. 12, 1831.

No claim. All parts pressed by or coming in contact with the earth are of metallic substance, the bar-share and point of wrought iron and steel, the mold or rolling board of cast iron. The bar and share are welded together, forming one piece. (See Plate A.) The bar is sloped projectively from its center to the front point. (See Plate B, Figures 1 and 2.) The share is of a solid triangular shape, forming a level base on top to the width of the rolling-board P A F 1 2 3, thence sloped down at near right angles, so as to form a smooth and regular circle with the face of the rolling-board from one point to the other, and upon the entire face of the plow P B F 3 4 5, the front edge of the rolling-board serving as a colter, being cast solid in front, with a sharp edge extending up near the under part of the beam, forming a quarter-circle, P B F 6 7, having two wrought screws cast in said board, the one in its heel, the other in the rear side of the solid part P A F 4 10, through which part is also cast a tube-hole, terminating two-thirds width in the rear of said board P A F 5 and B F 14.

The stock (consisting of a wooden beam, a sheath, helve, two handles and three rounds) is united to the rolling-board permanently, with the wrought screw in its rear, which passes through the sheath or helve and screwed firm; P B F 8, an iron rod passing through (from the under part of the share) the tube-hole in the rolling-board, through the beam, and screwed by a tap on top; P A F 6 and P B F 9 10, an iron bolt passing through the face of the board and sheath and riveted. The handles are put on with iron pins, screws and taps; P A F 7 8 9, a lock rod or brace extending through the sheath to the under part of the beam, along the same near the end, where it is attached to the clevis by a screw-driver which passes through the beam and clevis; P B F 11 12, an iron bolt passing through said rod or brace, the beam, and screwed at top P B F 13. The stock and rolling-board thus united is designed not to be separated, and when placed upon the bar and share the whole is permanently bound together by the screw in the heel of the board, a screw-pin in the front point thereof, P A F 10 11, both of which pass through the level base of the share and screwed by taps underneath, as also by the iron rod which passes through the share, the tube-hole in the board, and through the beam, with a screw and tap on the top; P B F 9 10, the

clevis designed to give or take the land and to regulate the depth of the plow P B F 15

The plow is adapted to work with or without a colter, and designed for fallowing, ridging and ditching farm lands, draining marshes, turnpiking roads, and repairing highways.

The projective slope of the bar and share gives to the plow a descending draft, which causes it to draw to and retain its hold in the earth to the depth regulated or required. The rolling-board and face of the share, forming a regular circle and passing on at near right angles, roll, bed and pulverize the earth at one and the same time, placing the surface soil to the depth the plow runs and bringing the clay or subsoil upon the surface.

All parts of the plow which are pressed by the earth, being metallic, immediately scour smooth, cut, slide, and roll off the earth without friction or compression, which renders the draft extremely light, and from the combination of its parts is rendered the more permanent by a hard draft.

#### **JOHN DEATS, Roxbury, N. J. Plows.**

Dec. 28, 1831.

**Claim.** The before described improvements in the mold-board, the main landside, the bottom landside, the cutter, the projection or ear on the share, and space in the same at the heel the plate of iron under the share, and the dovetail piece of cast-iron in the end of the beam.

#### **70. JOHN DEATS, Roxbury, N. J. Plows.**

Dec. 28, 1831, Reissued May 16, 1845.

**Claim. 1.** The manner in which the main landside piece B is combined with the mold-board by means of the piece *h h*, cast onto the landside, and fitting into the recess prepared for it on the front edge of the mold-board, the two parts being drawn together by means of a wedge entering the space *k*, as set forth.

**2.** The manner herein set forth, of forming and combining the bottom landside-piece, *e e*, by which form and combination this piece is rendered reversible and capable of regulating the pitch of the plow, as set forth.

**3.** The manner of forming and combining the reversible cutter *b*, extending from front to rear of the upper part of the landside, so as to constitute a part thereof, and being capable of being set forward to any required extent from the manner in which it is connected to the main landside-piece.

**4.** The manner of confining the combined share and point in place by means of the bolt *ff*, passing up through the sheath, the bolt *s*, and the recess and tongue *t u*.

**5.** The particular manner of combining the clevis with the piece *x*, let into the end of the beam, so as to operate in the manner described.

#### **JOSEPH DUDLEY, Fleming Co., Ky.**

Plows. May 8, 1832.

No Claim. The share and mold-board are

all in one piece, and the landside is formed with an upright bar, that is attached to it near the point of welding, so as to form a regular circular from the point of the landside up the upright bar high enough to receive the front of the share. The share is attached to it by welding. The upright then passes straight up through the beam, and is secured by a screw and tap on the top of the beam. It is further secured by a brace that passes from the heel-screw across the upright bar about two inches below the beam, where it is secured by a short bolt that passes through the upright bar and brace, with a screw and tap on it. The brace then passes on through the beam, and is secured on top of the beam with a screw and tap, all of it made of wrought or rolled iron. The heel is made straight with the outside of the landside-bar and long enough from the turn to extend eight or nine inches up the handles, with the head of the heel-screw countersunk level with the bar.

#### **JOHN BUCH, Fairfield, Ohio. Plows.**

Dec. 28, 1832.

**No Claim.** The landside and mold-board are both of cast-iron, and, as will be seen in the model, are separate and detached pieces. They are fastened together at the lower end of the plow by a lock, and at the upper end by a screw passing through the landside, sheath, and mold-board. The landside and mold-board, it will be seen, are retained in their proper relative positions and made secure by a large screw passing from the bottom of the plow through the mold-board and beam, to which it is fastened by a tap. It will also be observed that the sheath passes up through the beam, and is made fast to the landside of the plow by an iron loop, which forms a part of said landside.

This improvement I claim as one entirely novel, and it has the effect of rendering the whole architecture of the machine more firm, consolidated, and secure than any other now in use, and is so considered by a number of practical men who have tested its operation. The share is movable and of wrought-iron, and is attached to the plow in the manner as represented in the model. The advantage of this is obvious, as when necessity requires it can be taken off to be either sharpened or steeled.

The manner in which the share is attached to the mold-board and secured to the landside differs from all other plows I have ever seen, and will be particularly observed by referring to the model.

The model, it will be further observed, is that of a left-hand plow. I also manufacture them right-handed, differing in no other particular from the model herewith submitted, both of which kinds I wish to be embraced in the Letters Patent.

#### **CHARLES B. TAYLOR, Bainbridge,**

Ohio. Plows. Aug. 23, 1833.

The mold is nineteen inches at the top and

seventeen inches at the bottom, of cast-iron, being thirteen inches high. The landside, eighteen inches long, of cast-iron, it and the mold-board being cast solid or in one piece. The top of the mold has a small stem two inches wide and one inch thick to pass through the beam; a share thirteen inches long and two inches wide, cast solid with the mold-board; a colter, of steel, twelve inches long and six inches wide, two inches on the landside and three on the mold-board, fastened by two screw-bolts passing through the colter and mold-board; a second share, of steel, fifteen inches long and seven inches wide, fitting up to a shoulder or rabbit in the mold-board and running an inch and a half under the first share and made fast by two screw-bolts, the colter and second share being welded at the point; a plate of steel put on the outside of the landside, fastened by two screw-bolts; a wooden-beam four feet long, and two handles three feet long, handles fastened together by three rings.

What I claim as my invention or improvement in the above is--

The cast-iron share or first share, cast solid with the mold board, the landside, cast solid or in one piece, the steel plate on the landside, the second share being of steel and split and made so as to fit on a shoulder on the mold-board and cover the second share on top and project an inch and a half on the under side, being welded fast to the colter at the point, fastened by two screw-bolts to the mold-board, the colter, of steel or iron, split and made extending three inches on the mold-board, two and a half on the landside, fastened by two screw-bolts, the mold-board being of the form of the Cary or Bull plow.

**ELISHA KELLY,** Bainbridge, Ohio.  
Plows. Aug. 26, 1833.

Claim. The rod D, for securing the handles A, to the mold-board, in connection with the hasp. The removable cutter C, of sheet iron.

**PETER HASTINGS,** Dagsboro, Del.  
Plows. Dec. 19, 1833.

No Claim. The invention consists in casting the movable share and landside sufficiently deep to protect the front of the mold-board from most of the wear to which it is exposed. To effect this object a recess is cast in the mold-board sufficiently large and deep to receive the improved share and landside. The share is then attached to the mold-board by bolts and screws. The cutting of the sword is performed wholly by the cutting-edge of the share, and not by any part of the mold-board, whereby a considerable saving of mold-boards is accomplished.

**ANTHONY TAYLOR,** Green Township,  
Ohio. Plows. Dec. 26, 1833.

No Claim. The colter instead of being a separated piece or attached to the mold board forms a part of the share, which is joined to

the upper surface of the mold board rather than the nether, as the others permitting the part that forms the colter to rest about one third its base upon the mold board the upper edge of the share bedded into the mold-board, so that they present an even surface to the furrow the share and colter fastened to the mold-board by means of a screw that passes through the share and mold board and tightens underneath by means of a nut; second, the horizontal surface of the mold board is nearly spherical instead of being straight, the advantage of which is it operates with the colter to facilitate the breaking of the turf; third, the left side of the mold board is continued up, forming the bolt that passes through the beam of the plow, having a shoulder to give the beam a permanent rest; fourth, the front surface of the mold board from the angle of the share and colter to the rear point has no concavity, as the plows of which is an improvement but is straight, entering the ground upon the principle of the inclined plane.

**DICHARD B. CHENOWETH,** Baltimore,  
Md. Plows. Mar. 17, 1834.

Claim. I distinctly claim the application of the share, with two points and which admits of a reverse application to the mold board and which by means of reversing the application sharpens itself by use.

**JAMES JACOBS,** Maysville, Ky. Plows.  
July 8, 1834.

Claim. The construction of the described mold-board, lies on the concavity and convexity produced, on the surface to obtain the rules laid down for drawing the lines on which the segments of the different circles are to be struck according to the desired end by means of or according to the arch given by the perpendiculars, raised from them.

**NATHAN ROBINSON,** Sackets Harbour,  
N. Y. Plows. Feb. 13, 1835.

Claim. A plow formed upon the principals, or in the manner herein set forth, by which it is made to run more easily and cleanly than those now in use.

**BENJAMIN JOHNSON,** Hickory Grove,  
Ills. Plows. Feb. 20, 1835.

The advantages of the first are that the draft is rendered more lighter in consequence of their being less friction, the spaces between the ribs preventing that clogging and accumulation of earth and soil, common to the mold board, and that all or any part of the ribs can be taken off at pleasure and a heavy plow made light, according to the work to be performed. By the second the stock is much simplified and rotting prevented there being no wood coming in contact with the earth. By the third the cost of the plow with this improvement will be much less than those in common use it being so simple and so cheap construction. By this means, also, the pitch of the plow can be regulated in a moment by

the screws and bolts passing through the eyes and beam. The durability of the plow so far as the stock, and ribs are concerned is greatly increased from the fact that all the wood is above ground and no joints are exposed to receive the water and thereby occasion rot.

**Claim.** 1. The first and most important is in the use of the ribs in place of the common mold board.

2. The heel of the plow extending up to the wood.

3. The plan of stocking the plow.

**NATHAN BAKER,** Penn Township, Mich.  
Plows. Mar. 24, 1835.

No claim. In the triangle No. 1 is a representation of the curvature of the fore part of the mold-board, and it varies from a straight line nineteen and one-half inches in length, extended from the point of the plowshare to the height of eleven and one-half inches perpendicular. The first distance, taken at right angles from said line six inches from the point of said share, was found to be two and one-half inches to said mold-board; second distance, taken as aforesaid, ten and one-half inches from said point is two and three-quarters inches; third distance, taken as aforesaid, fourteen and one-half inches from said point, is two inches.

In triangle No. 2 is a representation of the curvature of the aforesaid mold-board, showing its variation from a straight line thirty-eight inches long, extending from the point of the plowshare to the extreme hind part of the mold-board to the height of ten inches perpendicular. The first distance, taken from said line nine inches from the point of said plowshare, and at right angles, is one and three-quarters inch from said line to the mold-board; second distance, fifteen inches from said line, taken as aforesaid, is two inches; third distance, taken as aforesaid, twenty-one inches from said point, two and three-eights inches; fourth distance, taken as aforesaid, twenty-seven inches from said point, two and three-eighths inches; fifth distance, taken as aforesaid, thirty-three inches from said point, one and one-half inch.

In the triangle No. 3 is a representation of the mold-board, showing its variation from a straight line twenty-four inches long, extending from the point of said plowshare, and dividing the angle formed by the intersection of the other two lines in two equal parts, to the top of the mold-board to the height of eleven inches. The first distance, taken at right angles from said line to the mold-board, nine inches from the point of said share, is three and one-half inches; second distance, taken as aforesaid, fourteen inches from said point, is four inches; third distance, taken as aforesaid, nineteen inches from said point, is three and one-half inches.

Figure No. 1 is a side view of said plow. A is the beam, six feet long; B, the colter, the point made of steel, and extending six inches

beyond the point of the plowshare; C, the mold-board, including the front side, which is four inches wide; D and E, the handles. Fig. No. 1, is a top view of the said plow. A is the mold-board, made of cast iron; C, the plowshare or point, made of steel, twenty-one inches in length and four inches in breadth.

The said steel-pointed plow will turn a furrow square over, so as to make a joint with the preceding furrow when propelled by any sufficient power.

**WILLIAM M. WALKER,** Washingtonville, Pa. Plows. Oct. 6, 1835.

**Claim.** The peculiar formation of the sheath or standard, and the projections on the inner sides of the mold-board which give the sheath or standard a leaning position, and cause the plow to take land as described.

**JOHN DOLHANER,** Canton, Ohio.  
Plows. Jan. 15, 1836.

**No Claim.** 1. In the beam, which is described as follows, to wit: length of the beam, (from letter D to letter E in the drawing,) five feet six inches. The part of the drawing marked D C E represents the landside, and not the top of the beam. From letter D to letter C is two feet six inches, and on the landside straight. At letter C it curves to the left toward mold-board side, or, rather, at that point describes an obtuse angle, and thence runs straight to letter E, three feet, and one and three-fourths inch to the left of a straight line continued as between D and C. The foregoing represents a left-hand plow. For a right-hand plow it should be reversed. The effect is that it causes the plow to cut the proper quantity of land, and in a great measure to guide itself.

2. In the mold-board and landside, which are so constructed that the landside enters a groove in the mold-board at such a distance from the point of the latter as not to weaken it, and is riveted so as to give permanency and strength, whereas, according to the old modes of constructing, the landside is merely lapped on the mold-board for reference. (See drawing at letter A.)

3. In that part of the landside which is fastened to the handle. The particular improvement consists in this, that the upper part of the back end projects backward in such a manner as to strengthen the handle by covering it. (See drawing at letter B.)

**DAVID PROUTY AND JOHN MEARS,** Dorchester, Mass. Plows. Mar. 4, 1836.

**Claim.** 1. The inclining the standard and landside so as to form an acute angle with the plane of the share.

2. The placing the beam on a parallel to the landside within the body of the plow, and its center nearly in the perpendicular of the center of resistance.

3. The forming the top of the standard for brace and draft.

**NATHAN LOCKLIN**, Sparta, N. Y.  
Plows. Apr. 28, 1836.

Claim. 1. The peculiar formation of the mold-board, landside and share, as described.  
2. The drag at the rear end of the mold-board.

**JACOB PLANK**, Carlisle, Pa., Plows.  
June 2, 1836.

Claim. In the wing of the model-board and brace, the wing of the side piece and joint in which the side piece fits and the branched iron brace as specified.

**JOSHUA GIBBS**, Canton, Ohio. Plows.  
June 16, 1836.

No claim. In the mold-board which has on the front part at letter B in Drawings Nos. 1 and 2, a slip-mortise to receive a tenon on the landside, as hereinafter described.

In the landside, which has on the front end, at letters A in Drawings Nos. 1 and 3, an offset towards the mold-board, or a tenon which laps into and closely fills the slip mortise in the mold-board, leaving the outer surface smooth. The benefits of these are that the two pieces are fastened firmly together, and firmness and solidity are thereby given to the plow.

In the bottom of the model-board, as represented in Drawing No. 4, letters C and D, which drawing represents the bottom of the model-board. The dotted line in said drawing running at right angles from the landside (represented by letter C) is the rear of the bottom of the mold-board according to the present mode of constructing them. The black line in the rear of this dotted line (at letter D) is the rear termination in my improvement. It projects three-fourths of an inch back of the dotted line and rests against the main post. This formation of the mold-board also gives greater strength to the plow.

In the long screw running up through the share, the mold-board, and the beam, commonly called the "false colter." Instead of being straight, according to the old mode, it is one-third larger in diameter at the lower end, where it passes through the share, than at the upper part. After it has passed up through the mold-board, the head of the false colter describes but half a circle, leaving one side of it smooth, in order that it may pass through the share close to the bar of the share. This plan leaves the false colter strong at the lower part, where the strain comes, and smaller at the upper part, where it passes through the beam, so as not to weaken the beam.

**TIMOTHY MILLER**, Pittsburg, Pa.  
Plows. July 2, 1836.

Claim. The convex curvature on the outside of the landside; also the bar on the inside of the landside; also the groove in the mold-board; also the countersunk hole in the model-board; also the bars on the shares and projections; also the rib or bar cast to the back of the model board.

**259. SAMUEL HARTPENCE and J. D. BOWNE**, Kingwood, N. J. Plows.  
July 5, 1837.

Claim. 1. The manner of constructing the cutter with a screw-bolt above, passing through the beam, and a holdfast or clip below, passing through the piece forming the share and point, made in the manner set forth, and holding the whole together, substantially as described.

2. The placing of a roller upon the rounded part above the cutter, as herein shown, for the purpose of preventing the clogging of the plow.

**260. JOHN C. SMITH**, Kingwood, N. J. Plows. July 11, 1837.

Claim. Making the share of the rhomboidal figure beveled and brought to a cutting-edge on two of its ends, so that as one edge wears away it can be reversed or turned end for end, being secured to the sheath by two screws near the center.

**273. J. B. NORTON**, Philadelphia, Pa.  
Plows. July 17, 1837.

Claim. 1. The graduator as respects its principle.

2. The manner of strengthening and securing the share to the mold-board.

3. The projection or bulb on the inner part of the landside of the plow, against which the plow-handle rests.

4. The method of securing the mold-board to the beam by the staple, in the manner before described.

**327. JOHN DEATS**, Rocksbury, N. J.  
Plows. July 31, 1837.

Claim. 1. The manner of forming the pattern of the mold-board so as to cast it to deliver from a single flask, with a tenon or pin cast near its front edge, in the manner and for the purpose described.

2. The manner of constructing and using the casting which I have denominated the "inner" or "false" landside, for attaching and connecting the various parts which are appended to it.

3. The particular manner of forming the reversible plate of cast-iron constituting the back end of the landside.

4. The placing the beam of the plow in the manner set forth.

**501. STEPHEN McCORMICK**, Auburn, Va. Plows. Dec. 1, 1837.

Claim. 1. The curved form given to the heel of the landside, and also the concave form of its back edge as it rises from the heel to the beam, as herein set forth.

2. The manner of stocking the plow, so far as the fixing of the handles is concerned, by causing their inner ends to meet about midway between the bottom of the landside and the beam, and confining them there in the way described.

3. The cast-iron clevis, formed and attached to the beam, substantially as herein set forth; that is to say, embracing the beam by its con-

cave part, and having a ridge let into the beam, and the bolt inclined backward to resist the direct action of the draft.

**604. WILLIAM T. SPROUSE,** Sagamore, Ill. Plows. Feb. 15, 1838.

Claim. The making of the mold and bar out of a single piece of iron by cutting and bending instead of making them out of two pieces of iron and welding them together.

**638. JOHN ORMISTON,** Center Township, Ohio. Plows. Mar. 17, 1838.

Claim. The peculiar form and construction of the double point and mode of fastening it, as above described.

**743. HENRY TAYLOR,** Montague, Mass. Plows. May 17, 1838.

Claim. The peculiar mode of attaching the colter and share, and extending the share up so high as to receive the bolt H, which unites the colter, share, mold-board, and chip.

**922. D. PROUTY and JOHN MEARS,** Dorchester, Mass. Plows. Sep. 15, 1838.

Claim. 1. The manner of securing and protecting the point of the colter by means of the inclined plane or guard, as above specified.

2. The manner of applying the locked colter by an opening on the landside and securing the same by a bolt and nut, whether made flush or covered by a plate, as above specified.

3. The manner of forming and applying the brace so as to secure the beam and land handle, unite with the mold-board handle, and adjust the position of the beam, as above specified.

**1,008. STEPHEN GREGORY,** Saw Pitts, N. Y. Plows. Nov. 14, 1838.

Claim. 1. The application of the dovetailed rabbet and cheeks on both sides the head-piece to receive corresponding parts in the fore end of the mold-pieces, by which wider or narrower mold-pieces may be used on the same standards or head-piece.

2. The mode of applying the dovetailed cross-wedge to secure the movable double-winged share as applicable to effect the intended purposes.

**1,019. JOHN DEATS,** Rocksbury, N. J. Plows. Nov. 25, 1838.

Claim. 1. Casting the standard (to which the mold-board, reversible landside, share, reversible cutter, flange-plate, beam, and beam-handle are fastened) with a mortise at the point to admit a tenon on the share, a countersink on the mold-board side to admit the flange of the flange-plate, a mortise in the shoulder to admit the end of the cutter, as before described.

2. Casting the share with a tenon for fitting into the notch or mortise in the point of the standard, as before described.

3. The flange-plate, in combination with the standard, as before described.

4. The letting in of one end of the cutter

into the groove G of the standard, as before described.

5. The additional or double share, as herein described.

**1,133. WILLIAM SMALL,** North Argle, N. Y. Plows. April 23, 1839.

Claim. The mode of securing the lower piece of the landside by means of a hook in the fore end, C, and in the hind end by lapping over the upper piece and fixing it by the same bolts that would be needful though the landside were in one piece, in the manner herein described.

**1,232. EBENEZER G. WHITING,** Racine, Wis. Plows. July 11, 1839.

Claim. Making the fore part of the mold-board a plain flat surface, in combination with the curvilinear part of the mold-board, united at or near the center, as before described, for preventing the friction arising from the accumulation of earth in the concave fore part of the mold-board.

**1,360. JOSIAH DUTCHER,** New York, N. Y. Plows. Oct. 9, 1839.

Claim. 1. The manner in which I construct the share—that is to say, the forming it of a wide flat plate, with two or more rows of holes for attaching it to the mold-board, for the purpose of shifting it forward as it wears, and with the fore end of said plate turned up, as described, so as to form a cutting-edge, while its plane coincides with and forms a part of the mold-board.

2. The manner of sustaining the front part of the share by placing its vertical portion between the colter and the flange cast upon the mold-board, and by passing a bolt through the whole, as set forth.

3. In combination therewith, the projecting piece or stop h, bearing against the heel of the plow, for the purpose of sustaining the back end of the share, as herein made known.

**1,401. JOSEPH CARD and GRANDISON NEWELL,** Painesville and Mentor, Ohio. Plows. Nov. 9, 1839.

Claim. The mode of drawing one and of coupling two or more plows together by means of the case, stirrups, and bolts herein described.

**1,482. MAHLON SMITH,** Tinicum, Pa. Plows. Jan. 28, 1840.

Claim. 1. The mode of supporting and securing the reversible cutter and share by means of the vertical plate and its horizontal flange, constructed and operating as set forth.

2. The mode in which I construct and arrange the reversible rhomboid cutter so as to present four instead of two cutting edges, as above described.

3. Constructing the movable land-bar with a share or wing attached, as set forth, so that both may be advanced together, as before described.

**1,976. BENJ. F. JEWETT,** Springfield, Ill. Plows. Feb. 12, 1841.

The before-described manner of fastening together the mold-board and sheath.

**2,132. DAVID PROUTY and JOHN MEARS,** Boston and Dorchester, Mass. Plows. June 16, 1841.

Claim. 1. Arranging or connecting the invertible nose and wing together by means of suitable grooves on the side of the former, and the corresponding angular or wedge-shaped sides of the latter fitting into the grooves, as described.

2. Embedding the invertible wing and nose or point upon the mold-board and confining them in their positions by means of a cap having projections and grooves corresponding with those of the said invertible parts, the cap being rabbeted to the plowshare, so as to have its upper face a continuation of the curved surface of the same, the whole being confined together by a bolt or bolts and nuts, substantially as hereinbefore described.

**2,274. JOSEPH and HENRY F. CROMWELL,** Cynthiana, Ky. Plows. Sep. 25, 1841.

Claim. The method of combining the mold board, point, and landside or bar of the plow, as herein set forth, viz.: by constructing the landside and point in one piece, detached from the mold-board, and attaching the latter to it by means of a groove in the point and ears riveted on the landside, through which bolts are passed so as to secure the whole.

**2,389. RINHEN McMILLEN,** Middleburg, Ohio. Plows. Dec. 14, 1841.

Claim. 1. So forming the beam as to cause it on its lower side to rise directly from the forward and lower point, *b*, of the mold-board, and its upper edge to rise directly from the upper and forward end, *c*, of the said mold-board, its lower portion, *A*, constituting a continuation of the landside, said beam rising thence upward and forward in the manner represented in the drawings hereunto annexed, and in combination therewith the casting of the share and colter in one piece in such a manner as that a V-groove on the back edge of the colter shall be received by a corresponding edge on the front line of the beam or landside *A* continued, as shown at *O P*, by which means the colter will be retained in its place and secured against the action of a blow on the under side of the point or share.

2. The particular manner in which I confine the share in place by means of what I have denominated the "saddle," and the hooked tenon or tenons, and the dovetailed tenon *F'*, adapted to the dovetail gain or notch *L* in the landside, into which it is slipped back, the respective parts being constructed and operating substantially in the manner herein set forth.

3. The particular manner in which I secure the mold-board to the landside by means of the

hooked piece *d*, in combination with the mortise *B'*, the share *C*, and the projecting piece *S* on the inner part of the landside for sustaining the point or forward end of the mold-board, all as herein described.

**2,548. GEORGE WATT,** Gainesville, Ala. Plows. Apr. 11, 1842.

Claim. 1. The mode of fastening the beam to the side of the standard by means of the cuff *H*, embracing the beam and passing through the standard by which arrangement the beam is not weakened by perforations for the usual bolt fastenings or tenoning, and likewise the beam is rendered adjustable, in the manner and for the purpose above described.

2. The method of attaching and bracing the colter to the beam by means of cuffs embracing the beam in the manner described instead of being bolted through the beam, as heretofore.

**2,557. THOMAS WIARD,** Avon, N. Y. Plows. Apr. 16, 1842.

Claim. The projection *e* and rib *c* on the on the mold-board combined with the mortise *e'* projection *a* and overlapping share *f* in the manner and for the purpose herein described.

**2,620. NATHAN HULL,** De Kalb, Miss. Plows. May 12, 1842.

Claim. The application of this braced frame to the use and purpose of altering the mode of setting iron plows to and from land.

**2,712. SAMUEL MYERS,** Marion, Ohio. Plows. July 11, 1842.

Claim. The mode of altering the set of the plow, by means of the rods, *B*, *E*, and *A*, combined and operating in the manner herein set forth.

**2,762. JAIRUS S. TAFFT,** Amherst, N. Y. Plows. Aug. 25, 1842.

Claim. 1. Constructing the mold board and shares *C* and *E* of a plow so that a share can be applied to either the upper or under side of the mold-board in the manner and for the purpose herein set forth.

2. The inclination of the cutter and landside, so as to cut a rhomboidal furrow slice, as above described.

**2,998. ABNER TEAGUE,** Jackson, Tenn. Plows. Mar. 10, 1843.

Claim. The combination of the standards *e* and *c* with the landside all formed of a single bar of iron constructed and arranged as above specified.

**3,034. WILLIAM OGLE,** Frederick, Md. Plows. Apr. 6, 1843.

Claim. 1. The manner of constructing and securing the cutter as described.

2. Extending the landside face of the cutter beyond the face of the landside to reduce friction as described.

**3,052. JEREMIAH GALLATIN,** Manchester, Ohio. Plows. Apr. 15, 1843.

Claim. 1. The mode and manner of adjust-

ing the clevis with moving swivel hook and its application to the plow.

2. The manner of adjusting the arms or handles.

3. The hanging of the wheel P, in a spring in the position as above described.

**3,110. JOHN NASH,** Middlebury, Ohio. Plows. May 20, 1843.

Claims. The mode of fastening the landside to the mold-board by using the hooks and loops in the combination with the guide pieces or catches and niches or mortises, all as described.

**3,137. THOMAS B. QUIGLEY,** Mansfield, Ohio. Plows. June 14, 1843.

Claim. 1. The manner in which the wing runs back, being parallel with the landside, forming a square of right angles to receive the firmly the sheath, landside and mold-board together.

sheath, thereby requiring but two bolts to unite

2. The improvement above referred to in the hook on the landside in front of the sheath.

**3,193. JOHN MOORE,** Lexington, Ky.

Plows. July 22, 1843.

Claim. The combination of the share with the mold-board and landside, in the manner and for the purpose before specified.

**3,259. WILLIAM BLACK,** Scott Co., Ill. Plows. Sep. 14, 1843.

Claim. Making the mold-board adjustable in the manner and for the purpose described, by which means the wing is made adjustable or susceptible of being slid down on a curved line and made fast at any given point of the whole distance it is allowed to be moved. The purpose designed to be effected is this, that the wings of the plow may be conveniently slid down whenever the wear of the edge may require, in order that the edge may be kept level with the bottom of the bar. The means by which this is effected may be clearly seen, reference being to the within description and accompanying drawings.

**3,266. GEORGE CLEASY,** Baltimore,

Md. Plows. Sep. 14, 1843.

Claim. The combination of the point g with the share f, and mold-board constructed and arranged in the manner and for the purpose described, the share and mold forming the socket in which the point is held.

**3,311. WM. and M. C. WALKER,** Washingtonville, Pa. Plows. Oct. 20, 1843.

Claim. 1. Casting the mold-board A with the wing I and mortise behind it for the admission of the hook K of the land-bar, in the manner and for the purpose set forth, and with the recess in the landside of the mold-board to admit the forward part of the land-bar B, made of a corresponding shape, as set forth, and in combination with the above the tongue A<sup>3</sup>, to fit into a corresponding groove or notch in the sheath, in the manner and for the purpose set forth.

2. The manner of forming the land-bar B with a hook, b, on its forward end to hook or lock into the notch a in the mold-board A, as described.

3. The construction of the clevis, as described.

**3,352. JAMES B. MOORE,** Wilmington, Del. Plows. Nov. 24, 1843.

Claim. The landside formed of three plates, constructed and arranged in the manner and for the purpose herein described, and in combination therewith the double cutter, in the manner substantially as herein set forth.

**3,372. PETER EICHAR,** Wooster, Ohio.

Plows. Dec. 5, 1843.

Claim. 1. The combination of the additional connecting-bar C and plow F and braces E E G with the single plow B, for converting the latter into a combined plow, in the manner and for the purpose set forth.

2. The combination of the adjustable beam A with the double plow, in the manner above described.

3. The manner of locking the landside of the mold-board by means of the hook M, mortise N, pivots x x, and brace V, combined and arranged as described.

**3,416. WILLIAM K. ALLEN,** Browns-brough, Ky. Plows. Jan. 31, 1844.

Claim. The adjustable plow-stock, in combination with the adjustable handles, as set forth.

**3,465. ISRAEL LONG,** Bucyrus, Ohio.

Plows. Mar. 9, 1844.

Claim. The combination of the roller with the plow, in the manner described, by means of the jointed bar B and rod k, so as to render it adjustable.

**3,579. AARON SMITH,** Bloomfield, Mich. Plows. May 10, 1844.

Claim. The particular form given to the heel of the binder mold-board, as shown by the triangular space a' s m, Fig. 8<sup>bis</sup>, by which form the slice deposited by the fore plow is left undisturbed and that cut by the hind plow is raised preparatory to its being deposited upon it.

**3,644. JONATHAN MOORERS,** Hazelton, Pa. Plows. July 1, 1844.

Claim. The cutter d, constructed and arranged as herein described, in combination with the sheath and beam, as above set forth.

**3,864. ANTHONY TAYLOR,** Greenford, Ohio. Plows. Dec. 19, 1844.

Claim. 1. The use of the shoe or socket-point L, made as aforesaid, in combination with the before-described plow.

2. I do not claim an additional or false land-bar, but the mode herein described of strengthening the share by means of the extra land-bar I, by which I am enabled in my plow to use wrought-iron shares.

**3,898. BANCROFT WOODCOCK.**

Wheeling, Va. Plows. Jan. 31, 1845.

Claim. The manner in which I have given stability to the respective parts of my plow by securing the same together by the means herein set forth—that is to say by the combined action of the staple and wedge D and e of the projections e e on the point, of the hooked knob f and its wedge h, arranged and connected with the other parts, as set forth, by which arrangement and connection of the respective parts I leave those parts which are to bear the main strain and shocks in a form which insures the necessary strength and prevents them from moving out of their places.

**3,913. SETH I. ROBERTS,** Jeffersonville, Pa. Plows. Feb. 12, 1845.

Claim. The combination of the stubble-bit with the landside-casting, in the manner and for the purpose herein set forth.

**3,918. E. BALL,** Greentown, Ohio. Plows. Feb. 20, 1845.

Claim. The manner in which I have combined the colter, the landside, and the self-sharpening point so that the three may be secured together by two bolts, giving at the same time great strength to these, as hereinabove described.

**4,112. SAMUEL SHEARER,** Big Prairie, Ohio. Plows. July 14, 1845.

Claim. The combination of the shoe m with the mold-board or the above-described plow, in the manner and for the purpose described, so that the plow shall always run in the proper position.

**4,222. THOMAS B. QUIGLEY and HARVEY HALL,** Mansfield, Ohio. Plows. Oct. 7, 1845.

Claim. The combination of the adjustable wheel with the adjustable beam, as described.

**4,263. JOHN BALL,** Greentown, Ohio. Plows. Nov. 8, 1845.

Claim. The combination of the point A, cutter C, and mold-board H, by means of the mortises in the point and the cutter, the tenon D on the lower edge of the cutter, and the dovetail tenon F on the landside of the mold-board H, so as to unite them and render them more permanent and durable than plows now in use.

**4,465. SAMUEL WITHEROW,** Gettysburg, Pa. Plows. Apr. 18, 1846.

Claim. The arrangement by which the tongue can be raised behind and lowered at the point, as above described.

**4,482. HARVEY H. MAY,** Galesburg, Ill. Plows. Apr. 25, 1846.

Claim. Extending the standard or post of the plow above and lapping over the beam, for the purposes and in the manner herein described.

**4,493. JOHN M. MAY,** Philadelphia, Pa. Plows. May 2, 1846.

Claim. 1. The making the landside, the mold-board, and post of plows all of one piece of plate metal, as herein described thereby saving much expense in making, and being more firm and substantial than when made of separate pieces.

2. The adaptation of a guard superficially applied to finished plows, as herein described, thereby adding to their durability by protecting the parts most liable to wear, when removed leaving that part of the plow as perfect as when new, and may be used or omitted at pleasure.

3. The method of attaching and securing the movable progressive share by means of the bolts passing down below the mold-board, in combination with the notches in the back edge of the share, substantially as herein described, thereby saving (when this form of plow is used) the great expense of shares, as one progressive share equals in service several of the ordinary kind.

4. The method of fastening and adjusting the colter as herein described, thereby presenting successively a great length of cutting edge to sever obstructions before the plow.

**4,549. DAVID ANTHONY,** Union Springs, N. Y. Plows. May 30, 1846.

Claim. The combination of the case c, box m, screw g, and nut d, and clamp e, constructed and arranged in the manner and for the purpose above described, and as represented in Figs. 1, 2, and 3.

**4,552. JAMES JOHNSON,** Wooster, Ohio. Plows. May 30, 1846.

Claim. The mode herein described of connecting the mold-board and landside of a plow, and bracing them by means of the projections a and b, the bracing-rod c, and the connections d and e below, in the manner and for the purpose specified.

**4,928. DAVID PROUTY,** Dorchester, Mass. Plows. Jan. 13, 1847.

Claim. The adjustable and shifting wing or wings, in combination with the mold-board, as described, by means of which the same plow can be adjusted to the cutting of furrows of different widths, as set forth above.

**4,976. GEORGE BARTLETT,** Smithfield, R. I. Plows. Feb. 20, 1847.

Claim. The location of the joints near the line of draft, or, in other words, near the axis about which the plow should, and ordinarily does, revolve when rolled for the purpose of guiding it.

**125. GEORGE BARTLETT,** Smithfield, R. I. Plows. Patented Feb. 20, 1847, No.

4,976. Reissued Nov. 7, 1848.

Claim. Connecting the handles and beams or lower parts of plows placed parallel and adjacent to each other by means of jointed rods, links or hinges when the same are arranged in

such a manner as will admit of a free oscillating or rolling motion of the plows, and at the same time preserve their parallelism, in both their height and length, in all positions within the arc of their vibration, whether the several parts be made and arranged as herein set forth, or in any other substantially similar manner, by which the same results are produced.

**4,980. JAMES H. CONKLIN,** Peekskill, N. Y. Plows. Feb. 27, 1847.

Claim. The combination of the share C and confiner D with the mold-board A, constructed, arranged, and operating in the manner and for the purpose set forth.

**4,995. EMANUEL ALBERT,** East Germantown, Ind. Plows. Mar. 6, 1847.

Claim. The two flanges C and d, as shown in Fig. 3, which connect together by the screw-bolt M permanently the flange C of the mold-board A with the flange d of the guard-plate B, as described in the specification and illustrated by the drawings.

**5,168. JAMES WALKER,** Bellefontaine, Ohio. Plows. June 19, 1847.

Claim. The combination of the mold-board with the landside and plate-share, substantially in the manner and for the purpose set forth, so that the plow can be made wider or narrower at pleasure.

**5,529. SAMUEL HALL,** Pittsburg, Pa. Plows. Apr. 25, 1848.

Claim. 1. The manner of securing the beam to the body of the plow by means of the curved termination of the rear end of the beam, the socket p between the mold-board and landside, the ear g projecting from the mold-board, with the slot j in the same, and the screw-bolt h, the whole combined and operating substantially in the manner and for the purpose herein set forth.

2. In combination with the foregoing described method of confining the beam to the body of the plow, the manner of giving a lateral adjustment to the front end of the beam by means of the wedge e, substantially as herein set forth.

3. In combination with the method of securing the beam to the body of the plow, the manner of combining the handles with the beam by means of the projecting arm s, the aperture w and slot n in the same, and the screw-bolts i i, combined and operating with the front end of the beam, substantially as herein set forth.

4. The manner of forming and uniting the wrought share with the point and cutter by the combination of riveting and welding, substantially in the manner and for the purpose herein set forth.

**5,750. JOHN ORMISTON,** Waterford, Ohio. Plows. Sep. 5, 1848.

Claim. The combination of the notched plate P and slotted hook stop E for adjusting and

holding the point A, and the manner in which the point passes through the front piece, C and is regulated by the notched Plate P and dog or stop E, and in combination therewith the tubular nose C', made with a flange, C<sup>2</sup>, and cutter C, as described.

**5,981. DAVID B. HAIGHT,** Perryville, N. Y. Plows. Dec. 26, 1848.

Claim. Interlocking the share and mold-board together by means of a tapering dovetailed tongue formed on the former, which enters a similarly-shaped groove made in the latter, substantially as herein set forth.

**5,998. ABNER LELAND,** Milton, Pa. Plows. Jan. 2, 1849.

Claim. The construction of the removable landsides with wings, substantially as represented, in combination with shares made without either bosses, loops or other projections upon the sides that would interfere with their being turned bottom side up and attached to the shanks in that position or obstruct their action when thus turned, the landsides and shares so constructed being connected together by one or more screw bolts, or by other analogous means.

**5,999. JESSE LAYMAN,** Lebanon, Ohio. Plows. Jan. 2, 1849.

Claim. 1. The combination of the adjustable hinged and winged colter m with the mold-board, landside and beam, the same being constructed and arranged substantially as herein described.

2. The combination of the auxiliary mold-board z with the principal mold-board d and adjustable colter m in the manner and for the purpose herein set forth.

**6,020. HEMAN B. SINCLEAR,** Lyndonville, N. Y., Jan. 9, 1849.

Claim. I do not claim the invention of any particular plow, but simply this method of regulating the draft by the above-described standard D, bolt F F, and regulating-set E. It can also be applied to all agricultural tools where a clevis is required of any kind.

**6,100. JOS. C. CLOUD,** May's Landing, N. J., Feb. 6, 1849.

Claim. 1. The employment of what I have denominated the "auxiliary furrow-side," forming a broad bearing at the heel of the mold-board, which is to be formed and combined with the plow, substantially as described, either in one piece with the mold-board or by an additional casting.

2. The fastening of the cutter C, extending down on the landside to the bottom of the plow, in the manner and for the purpose set forth, by means of a mortise through it that received the tenon z' on the wrought-iron plate D, and which plate is bolted to the model-board at c'.

3. The particular manner in which I secure the point and share to the cutter by means of the plate D, having a tenon, b', thereon, and the ordinary screw-bolt as described.

**6,611. JOHN RICH,** Troy, N. Y. Plows. July 31, 1849.

Claim. 1. The manner of forming the bed of a plow with a socket for the admission of the handles, and securing the mold-board to the bed A by means of the knobs b, the one wedge d serving the double purpose of retaining the mold-board and lower ends of the handles in place, in the manner described and represented.

2. So constructing the brace C as to make a firm rest and fastening for the handles, thereby rendering an effectual and simple fastening for the handles of a plow, the whole being arranged substantially as set forth.

**6,620. JESSE WARREN,** Glens Falls, N. Y., July 31, 1849.

Claims. 1. The exclusive use of a mold-board composed of two sections or parts, J L, the lower section or part, J, being secured to the landside by the trapezoidal-shaped plate O and extension or bed A' upon which it rests, the upper section or part L, being adjustive and adjoined thereto by projecting pivots L' L'', upon which it turns, and adjusted and secured by means of a hook-bar, N, fixed to the landside B, the whole being constructed and arranged in the manner described.

2. The manner of securing and attaching the land-bar I to the landside, as described and represented.

3. The combination of the adjustive weeder and leveler F with the landside and adjustive sustaining wheel E, as described.

**6,788. BENJAMIN SEYLER,** Mercersburg, Pa. Plows. Oct. 16, 1849.

Claim. 1. Joining the lower edges of the mold-board and fixed landside d by means of a sole, e, cast in one piece with them, whereby the plow is greatly strengthened and the fastening of the share rendered more secure.

2. Making an aperture h, through the side of the fixed landside, for the purpose of introducing a wrench to turn the nut on the bolt which holds the share to the sole, the aperture being combined with the manner herein described of fastening on the point.

**7,021. J. HOWELL, W. D. HOWELL, and JOSEPH SIPE,** Clarke Co., Ohio. Plows. Jan. 15, 1850.

Claim. The combination of the crown-head A and bolt D with the upright, by which the plow is made to cut any width and depth desired, made substantially as herein described.

**7,656. W. MORRISON,** Carlisle, Pa. Plows. Sep. 17, 1850.

Claim. The adjustable spring bar, interposed between the point of draft and the frame of the plow, in the manner and for the purpose herein set forth.

**7,994. GEO. HEFFLEY, S. CONRAD and J. WIGLE,** Berlin, Pa. Plows. Mar. 25, 1851.

Claim. Providing a right-angled heel-plate

L, with a hook, P, for the purpose of interlocking with a hook-shaped projection, Q, attached to the land-bar, forming a hook-joint, said heel-plate L forming the bottom and side of the land-bar, and having its rearward portion susceptible of vertical adjustment by means of a screw, T, and, when adjusted, being clamped by a horizontal screw-bolt, N, its shank being placed in a segmental slot to admit of its moving with the heel-plate, as described.

**8,794. JOSHUA WOODWARD,** Haverhill, N. H. Plows. Mar. 5, 1852.

Claim. The plate e, constructed, arranged, and combined with the plow, substantially in the manner and for the purpose set forth.

**8,819. E. BALL,** Canton, Ohio. Plows. Mar. 23, 1852.

Claim. Connecting the beam to the plow-irons by means of a pivot and stay-bolt, G, and adjustable standard, F, the whole being constructed and arranged as described, so that the front end of the beam can be set towards either side, or either extremity raised or lowered, without changing the height of the other, or both extremities raised simultaneously and equally or unequally, substantially as set forth.

**9,061. DAVID SWARTZ,** Tom's Brook, Va. Plows. June 22, 1852.

Claim. Combining a plow and harrow in one implement; that is to say, attaching a comb or rake or its equivalent to the rear and upper end of the mold-board, to comb out and pulverize the soil on the bottom of the furrow as it is turned up, substantially as set forth.

**9,129. N. BLATCHLY,** Windsor, N. Y. Plows. July 20, 1852.

Claim. The arrangement of the beam of a plow with respect to the irons and the bending of the standard toward the land, and having its line of direction parallel with that of the landside, in the manner and for the purposes herein set forth.

**9,362. W. L. HUNTER and A. GARDNER,** Cincinnati, Ohio. Plows. Oct. 26, 1852.

Claim. Bolting the standard, mold-board, landside, and share to the block F, or its equivalent, instead of bolting or fastening the parts to each other, as has been practiced heretofore, which block F may be connected to the beam by a bolt, K, or otherwise, substantially as described and represented.

**9,473. HARVEY SPRAGUE,** Riga, N. Y. Plows. Dec. 14, 1852.

Claim. The combination of the arms D and E with the connecting and regulating bar I, the arms D and E and the connecting-bar I forming an arch and working on an axle which passes through the beam, in the manner and for the purpose substantially as herein described and set forth.

**9,646. SOLOMON HORNEY, JR.,** Richmond, Ind. Plows. Apr. 5, 1853.

Claim. Constructing the shank hollow in a single piece, with two closed ends, substantially as described, and securing the same to and with the share and beam by means of the master-bolt, and the short bolt passing through the slot in the top end of the hollow shank, for varying the position of the shank with the beam and for giving additional security to the fastening of the same, substantially as herein set forth.

**9,875. WILLIAM V. BURTON,** Orange, Ohio. Plows. July 26, 1853.

Claim. 1. The manner of securing the points of the landside, land-cutter J, and counter-side H, by the lock couplings or joint formed in the mortise i by the curvature of the tenons I and j, as herein set forth.

2. The plow-point M and a reversible landside-piece in the manner specified, whereby the landside-piece and point M are made reversible.

**10,069. ROBERT A. GRAHAM,** New Paris, Ohio. Plows. Oct. 4, 1853.

Claim. 1. The screw-bolt n, or its equivalent, for setting out or in the rear edge of the mold-board with respect to the landside, acting in combination with the bolts e and f, which, being tightened, attach to each other the mold-board, sheath, and lipped or flanged share, as described, and which bolts, being temporarily relaxed, permit the vibration of the mold-board about the bolt e without interrupting the continuity of plowing-surface or disconnecting the several parts.

2. The shifting or adjustable socket attachment of the beam to the sheath in combination with the dovetailed and adjustable connection of the rear end of the beam to the helve, or equivalent devices, so as to vary the direction of the draft of the plow to suit the requirements of a change in the flare of the mold-board, and other objects, as herein explained.

**11,356. THOMAS F. CHAPIN,** Walpole, N. H. Plows. July 25, 1854.

Claim. 1. Attaching the beam C to the mold-board A by a pivot, a for the purpose of allowing the outer end of said beam to be raised or depressed, as desired, and thereby give the share a greater tendency to enter the earth and causing the furrows to be of the desired depth.

2. The means herein shown and described for operating the beam C, viz: the box or socket D, having within it a rack, E, and pinion F, the rack being connected to the beam by a rod, G, the above parts being constructed and arranged substantially as set forth.

**11,575. DAVID and SAMUEL SWARTZ,** Tom's Brook, Va. Plows. Aug. 22, 1854.

Claim. Constructing the mold-board and landside with slots as described, and the point and cutter with tongues or flanges to fit the said

slots, so that the said point and cutter shall slide in horizontally, or nearly so, and form a fastening with the mold-board and landside without the use of screws or bolts, substantially as set forth.

**11,821. HENRY F. BAKER,** Centre-ville, Ind. Plows. Oct. 24, 1854.

Claim. The manner herein described and shown of providing the share C, which forms part of the mold-board B, with a curved slotted arm, D, d, and the mold-board with a curved slotted arm, F, and attaching the slotted curved end of D to the arm c and its forward end to the point A, and combining the same with the curved slotted arm F and adjusting-lever G through the vibrating rod E, in such a manner that the plowman can, while behind the plow, adjust the mold-board in the arc of a circle with greater convenience and facility than heretofore, substantially as and for the purposes described.

**12,381. GEO. ESTERLY,** Heart Prairie, Wis. Plows. Feb. 13, 1855.

Claim. Casting the standard G with raised portions A, landside H, and form-lay K, all in one piece, to be employed either with or without projection B, as set forth.

**12,398. IRA REYNOLDS,** Republic, Ohio. Plows. Feb. 13, 1855.

Claim. 1. The laterally extending shoulders r' r', drawn back against and somewhat between the two shoulders r r, in order to hold the point securely in place and prevent the breaking of the shank t near the shoulders in the operation of plowing, substantially as set forth.

2. The arrangement of the within-described reversible steel share as secured to the face of the mold-board by means of a screw-bolt inserted from the lower side, the female screw being formed in the steel share, as set forth.

3. The reversible self-fastening colter, constructed, secured, and arranged in manner and for the purposes herein set forth.

**12,838. E. C. TAVENNER and O. NESMITH,** Hamilton, Va. Plows. May 8, 1855.

Claim. The landside-plate a a a a, in combination with the fend-off or cleaner K K, constructed and arranged substantially in the manner and for the purpose set forth.

**13,082. L. G. EVANS,** Spring Hill, Ala. Plows. June 19, 1855.

Claim. Connecting and arranging the mold-board d, landside m, and colter c in such a manner that they are together capable of a vertical and lateral adjustment, in addition to the particular adjustment of the mold-board, as described.

**13,228. A. and S. PEACOCK.** Cincinnati, Ohio. Plows. July 10, 1855.

Claim. The use of a solid cast-metal point, as above described, in connection with steel or

other wrought-metal mold-boards for plows, when united therewith as described in the above specification, or in any way equivalent thereto, so as to form of the two parts a mold-board, the greater part of whose surface is steel or other wrought metal and the point or front part of solid cast metal, as a wearing-point.

**13,493. JOHN L. GILL.** Columbus, Ohio. Plows. Aug. 28, 1855.

Claim. A plow composed of a steel mold-board, cast-iron share, sheath, and landside, when the several parts are arranged and united as herein set forth.

**14,044. BENJAMIN F. AVERY,** Louisville, Ky. Plows. Jan. 8, 1856.

Claim. 1. The lock-joint for holding the landside to the short landside and mold-board, the same consisting, mainly, of a Q-shaped projection *g*, hook *n*, and flange *h* and their counterparts in the short landside.

2. The ears or lugs *d d*, cast on the inside of the mold-board for the purpose of fastening the mold-board handle.

**14,075. WILL E. WYCHE,** Brookville, N. C. Plows. Jan. 8, 1856.

Claim. The arranging upon the share of the plow of one or more vertical cutters, with a curved or inclined plate, *F*, at or near the rear of the outside of the share, for the purpose of dividing the furrow-slice vertically and turning the outer portion in toward the plow, as set forth.

**14,333. WILL E. WYCHE,** Brookville, N. C. Plows. Feb. 26, 1856.

Claim. Substituting a series of knives or cutting-blades on the standard in the place of and for a mold-board, for dividing, cutting, and turning the furrow-slice horizontally, or nearly so, and depositing the pulverized soil mostly in the furrow, and turning the sod or turf upon the surface, and this I claim whether said knives be made adjustable or otherwise, substantially as described.

**14,346. JAMES J. CADENHEAD,** Macon Co., Ala. Plows. Mar. 4, 1856.

Claim. The adjustability of the brace *k*, in combination with that of the bar *e* and that of the beam *c*, for the purpose of regulating, as herein described, the pitch of the beam, and the height of the beam and handles together or separately.

**14,989. GEO. W. ZEIGLER,** Tiffin City, Ohio. Plows. May 27, 1856.

Claim. Simply an improvement upon the invention of Norton, such as is set forth in the foregoing specification; that is to say, by combining with landside and mold-board a colter, *F*, jointed to the landside, as described, and movable between landside and mold-board independent of the mold-board and share.

**15,039. C. GARRETT and T. COTTMAN,** Cincinnati, Ohio. Plows. June 3, 1856.

Claim. The arrangement of the standard *3*, flange *4*, share *1*, and mold-board *5*, and these arranged with the brace-bar *9* and stay-bar *6*, for the purposes mentioned in the foregoing specification.

**15,137. N. S. LOCKWOOD and J. D. WINN,** Dayton, Ohio. Plows. June 17, 1856.

Claim. Welding the post *A* or breast *A'* to the mold-board *B* and attaching the share *C* and landside *C'* to the mold-board and post or breast by means of the flange *A'* at the lower end of the post or breast and the plate *C''* of the share and landside, through which flange and plate screw-bolts *F F* pass, substantially as shown, for the purpose specified.

**15,344. JOHN RICH,** Kingsbury, N. Y. Plows. July 15, 1856.

Claim. The sockets *i* and *k*, when arranged and combined with the body of the plow, in the manner and for the purposes herein specified.

**16,218. GEO. WATT,** Richmond, Va. Plows. Dec. 9, 1856.

Claim. The curved standard, when its front or concave side is rounded off, in combination with the undulating line *x x x*, extending from the point of the plow to the tail of the mold-board, and when formed by the intersection of the two curvilinear surfaces of the mold-board and the standard.

**506. GEORGE WATT,** Richmond, Va. Plows. Dec. 9, 1856. No. 16,218. Re-issued Nov. 10, 1857.

Claim. The curved standard, with its front or concave side rounded off and its curved surface extended to intersect the mold board along its upper edge *x x x* substantially as and for the purpose set forth.

**16,277. JACOB HECKENDORN,** Elkton, Md. Plows. Dec. 23, 1856.

Claim. The twisted four-coltered double ended and reversible self-sharpening point *F F F F*, essentially as described, and represented in Fig. 5, of the drawings, formed of one piece or casting and operating as point and colter, as specified.

**17,476. JOHN ORMISTON,** Centre Township, Ohio. Plows. June 2, 1857.

Claim. Uniting and adjusting the shank of the point *D* to and with the shank of the colter *E*, by means of the head on said piece *D*, the rack on the shank of said colter and the stirrup and set-screw, substantially in the manner and for the purpose set forth.

**17,577. CHARLES B. INGERSOLL,** Morris, Ill. Plows. June 16, 1857.

Claim. The standard *A*, in combination with the standard-arms *A' A''* and share bar *E*, constructed and arranged in the manner and for the purpose set forth.

**18,335. MANASSEH GROVER,** Clyde Ohio. Plows. Oct. 6, 1857.

Claim. The combination of hinged forked bar B and beam A with the segmental bar D and the adjustable lever E, with its roller J, the whole arranged and operating substantially as and for the purpose hereinbefore set forth.

**18,682. JAMES G. CUMMINGS,** Columbus, Miss. Plows. Nov. 24, 1857.

Claim. 1. The mode of making the plow-standard, to carry the variety of cutters and mold-boards, the same consisting in the expansion of the standard at the point A, in combination with the groove in the nose of the plow as set forth.

2. The compound adjustment of the mold-board by the three set screws K J S, operating upon the heel of the landside, as set forth.

**18,750. JOHN LANE Jr.,** Lockport, Ill. Plows. Dec. 1, 1857.

Claim. The rigid foundation or frame when constructed with a taper point and inclined flange which projects nearly at right angles from the landside of the plow underneath the mold board and lay, for use in combination with a yielding mold-board, a yielding steel lay which has a complete taper socket at its point and with a steel landside facing, substantially as and for the purposes set forth.

**18,783. ROBERT B. WINSTON,** Richmond, Va. Plows. Dec. 1, 1857.

Claim. The construction of the beam as described in combination with the land side, when the said beam is cast in one piece with the landside in the manner described, and for the purposes set forth.

**19,163. THOS. THOMPSON,** Thompsonville, N. C. Plows. Jan. 19, 1858.

Claim. The curved beam B and landside L, having the depending ear e and upright standard f, secured to the beam as described, in combination with the opposite-curved adjustable handles H H, as constituting an improved construction of the plow.

**16,321. GEO. WATT,** Richmond, Va. Plows. Feb. 9, 1858.

Claim. Constructing mold-board and landside of cylindrical surfaces of equal diameters, intersecting along the cutting-edge of the plow, in combination with the curved standard S, the whole being constructed substantially as for the purposes heretofore set forth.

**245. GEO. WATT,** Richmond, Va. Plows. A. I. to patent. Feb. 9, 1858. 19,321. Aug. 2, 1859.

Claim. The combination of the eccentric roller r, beam B, notches i, and cuff f, substantially set forth.

**790. GEO. WATT,** Richmond, Va. Plows. Patent 19,321. Feb. 9, 1858. Re-issued. Aug. 2, 1859.

Claim. Constructing mold-board and landside of cylindrical surfaces of equal diameters intersecting along the cutting-edge of the plow in combination with the standard S, curving landward from the top of the mold-board to a position nearly over the base of the landside, as herein set forth.

**3,071. GEO. WATT,** Richmond, Va.

Plows. Patented Feb. 9, 1858. 19,321. Improvement added Aug. 2, 1859. 790. Re-issued Aug. 2, 1859. Again Re-issued Aug. 4, 1868.

Claim. 1. The combination, in a plow, of a landside, having an inward inclination from its base toward the mold-board, and a neck, breast or standard, having a diverse or outward inclination, substantially as set forth.

2. Constructing mold-board and landside of cylindrical surfaces, intersecting along the cutting edge of the plow, in combination with the curved standard S, the whole being constructed substantially as and for the purpose hereinbefore set forth.

3. The combination of the eccentric roller r, beam B, notches i, and cuff f, substantially as set forth.

**19,455. TURNEY SANFORD,** Redding Ridge, Conn. Plows. Feb. 23, 1858.

Claim. The bars D D F F in connection with the metallic rods G H and braces i i, the whole being constructed and arranged relatively with each other and the standard C, landside A, and mold-board B, as herein shown, and for the purpose set forth.

**19,563. DAVID HOKE,** Byhalia, Miss. Plows. Mar. 9, 1858.

Claim. 1. The arrangement of the colter D, in combination with the stock C and beam A, substantially in the manner and for the purpose specified.

2. The mode of constructing the stock with a long horizontal flange a, by which it is not only secured to the beam but by which the colter is held back against the foot of the stock, substantially as described.

**20,968. WALTER WARREN,** Penn Yan, N. Y. Plows. July 20, 1858.

Claim. The within-described arrangement of beam A and its portion G with the mold-board B and its landside portions E F, the whole being constructed as and for the purpose set forth.

**21,423. SAMUEL HULBERT,** Ogdensburg, N. Y. Plows. Sep. 7, 1858.

Claim. The adjustable beam F, slat D, pivot C, spring-clevis E, and adjustable handle G, combined, arranged, and operating as set forth and described.

**21,824. JOHN DICKSON,** New Castle, Pa. Plows. Oct. 19, 1858.

Claim. The use of a double movable landside for increasing the size and weight of the plow, in the manner hereinbefore described.

**21,846. WILLIAM REANCY,** Berzelia, Ga. Plows. Oct. 19, 1858.

Claim. 1. The mode of varying the form of the plow by the use of the adjustable colter, Figs. 3 and 4, the latter being provided with the subsoiler E, and the several parts constructed and arranged for operation substantially as set forth.

2. The use of the wedge C, in combination with the mold-board, for adjusting the entire front part of the mold-board to correspond with the adjustment of the colters, as described.

**22,332. THOMAS WIARD,** Louisville, Ky. Plows. Dec. 14, 1858.

Claim. 1. The standard A, with its permanent wing B, and recesses or shoulders for the reception of the removable wing I, constructed and arranged substantially in the manner and for the purpose set forth.

2. In combination with the standard A, constructed as herein set forth, the adjustable cutting and guiding wheel L, so that said wheel may be thrown into or out of action, as the circumstance of the case may require, and as described.

3. The uniting of the handles, beam and standard together, by means of the pockets d, dowels e, recesses f, and bolt h, substantially in the manner herein described.

**22,389. REED VINCENT,** Rockton, Ill. Plows. Dec. 21, 1858.

Claim. The combination of the convex standard A, the braces B D, and the mold-board, when arranged in connection with the beam and bent handles C as described and represented, and for the purpose set forth.

**23,116. ISAAC RULOFSON,** Penn Yan, N. Y. Plows. Mar. 1, 1859.

Claim. The arrangement of beam A, standard B, landside strip D, share E, mold-board C, and piece H, the whole being constructed and united as and for the purpose set forth.

**863. ISAAC RULOFSON,** Penn Yan, N. Y. Plows. Reissued Dec. 13, 1859, of No. 23,116.

Claim. Moving and adjusting the beam A laterally upon the standard B, by means of the head L and dovetailed connections m m and j j or their equivalents, in such a manner that the line of draft, or direction of the beam, shall always remain parallel with the landside of the implement, substantially as and for the purposes herein shown and described.

**23,904. EDWARD DAVIDSON,** Batesville, Ark. Plows. May 10, 1859.

Claim. The combination of the bar e, stirrup e, rod f, with the adjustable supplemental landside F, share G, and the stationary share E and landside C.

**23,938. WILLIAMSON NICHOLS,** Floyd Co., Ga. Plows. May 10, 1859.  
By this invention a plow is so regulated that

when in operation the plowman can either plow to or from whatever is worked.

Claim. The arrangement of the forked beam G, segmental head F, holes g, bolts 4 and 5, clevis f, stock H, handle L, rivet e, and holes 1 2 3.

**24,053. ASA PRESTON,** Unionville, Ohio. Cultivators. May 17, 1859.

Claim. The construction of a combined plow cultivator, having the several parts so arranged that they can be easily attached or detached, as described, when said plow has the hinged wings W, mold-board H, bars L M, and blades J K, arranged and operated substantially as set forth.

**24,617. ISAAC COOK and JOHN T. BEVER,** Haynesville, Mo. Plows. July 5, 1859.

Claim. The combination and arrangement of the sharp edged landside wheel D E with a reversible double-pointed mold-board A B C, which has no landside bars, substantially as and for the purposes set forth.

**25,463. WILLIAM B. WILLIAMS,** Warrenton, N. C. Plows. Sep. 13, 1859.

Claim. 1. The combination of screw-bolts S, nut n, in beam B, standard A, cuff c, and slotted brace b, to regulate the depth of plowing, substantially as described.

2. And, in combination with the above, the curved arm D, for collecting weeds, substantially as described.

**25,817. GILMORE EMORY and AARON C. WILSON,** Newfield, Me. Plows. Oct. 18, 1859.

In the engravings B is the mold-board, connected with the landside A by bolts passing through the projections n n on the landside and through corresponding ones on inside of the mold-board; C is the point, D the beam, perfectly straight, bolted on either side; the beam can be elevated or depressed at pleasure to regulate the depth of the furrow.

Claim. The arrangement of the various parts of the plow, when constructed as described for the purposes set forth.

**25,873. BENJAMIN F. AVERY,** Louisville, Ky. Molding Plows. Oct. 25, 1859.

This invention consists in constructing the pattern for the short landside of the plow, patented by this inventor Jan. 8, 1856, in two parts, so that they may be drawn at opposite angles from each other, and in this manner forming the holes or depressions and ridges or depressed squares upon the outer surface of the short landside.

Claim. The peculiar construction of the patterns B C of the short landside, as set forth, so that they may be drawn at opposite angles from each other, for the purpose and in the manner specified.

**26,111.** W. T. JONES, Joliet, Ill. Plows. Nov. 15, 1850.

Claim. 1. The attaching of the mold-board E, landside F, and share G, to the standard C, by means of a joint or hinge, the plates or leaves *c f* of which are provided with screws, and arranged substantially as and for the purposes set forth.

2. Constructing the standard C with a forked upper end, in connection with the rod D, lug *h\**, and flanch *f*, arranged substantially as shown, to admit of the proper attachment of the beam and handles to the plow.

**26,390.** WILLIAM F. YEAGER, Starkville, Miss. Plows. Dec. 15, 1859.

Claim. The arrangement of the landside G, the shank S, slot P, brace T, lug U, beam F, brace X, handles E D, share A cutter K, and mold-board B, the whole being constructed as described for the purposes set forth.

**26,633.** SAMUEL WALKER, Kings-ton Ga. Plows. Dec. 27, 1859.

Claim. The arrangement of the beam A, bars D D, foot B, and handles E E, as shown and described, in order to admit of the adjustment of the parts, as and for the purpose set forth.

**26,655.** HENRY F. CROMWELL, Cynthiana, Ky. Plows. Jan. 3, 1860.

The slots *a* and *c* render the wing C adjustable in respect to the bar and sheath E, and the bolts D D<sup>1</sup> and nuts *d d'* serve to secure it firmly in any position desired. The flange A, sheath E, and wing C all have the form of a cylindrical segment, so that the wing in every position of adjustment possesses a firm and solid bearing upon the bar and upon the sheath.

Claim. The described arrangement of the cylindrically curved frame timber or sheath E, wing C, flange A, bar B, slots *a* and *c*, and bolts D D<sup>1</sup>, the whole being constructed and combined in the manner and for the purposes set forth.

**26,682.** HENRY R. KINNEY, Ports-mouth, Ohio. Cultivators. Jan. 3, 1860.

This invention consists in the arrangement of the furrow plows, adjusting devices, and the frame, so that the plows may be all adjusted and shall all stand on the same side of a row of plants and one row of them turn up a furrow slice close along the side of the young plants, and another receive the same and return it in a loose or friable condition back against the roots of the plants and the other plow up the remaining portion of the soil between the two rows of plants.

Claim. The arrangement of the furrow plows D D D<sup>1</sup>, adjusting devices E E E, and frame A B C, in the manner set forth.

**26,833.** VOSCO M. CHAFEE, Xenia, Ill. Plows. Jan. 17, 1860.

Claim. 1. The double flanged reversible cutter landside, in combination with the pecu-

liar shaped stand D, and bolts O O and Q, substantially as set forth.

2. The arrangement of the turning plate E, in combination with the double flanged reversible cutter landside and bolts O O and Q, or their equivalent.

**27,322.** SILAS O. VAUGHN, De Kalb, Ill. Plows. Feb. 28, 1860.

This invention consists in the manner of attaching the beam of the plow to the landside handle, and also to the standard, whereby the beam is rendered capable of being adjusted both laterally and vertically to regulate the width and depth of the furrow as may be desired.

Claim. The arrangement of the rod J, beam F, standard I, taper hole *e*, strap G, screw *a*, slots *b*, eye H, plates *c c*, handle D, and landside A, as shown and described.

**27,450.** EDWARD JULIER, Beverly, Ohio. Cultivators. March 13, 1860.

Claim. The arrangement of the slotted, adjustable, laterally connected compound beam and stock *g g 2 h* and L L M, Figs. 1, 3, 4, when combined with the solid wrought metal compound mold and share *d e n o s*, Fig. 5, and when said combination is so arranged as that the heel or butt end of one cutting edge overcuts the point or toe of the advance share, admitting also of being adjustable more or less forward or backward relative to each other, substantially as set forth and described.

**27,745.** DAVID E. SMITH and E. E. SMITH, Glenn Springs, S. C. Plows. Apr. 3, 1860.

Claim. The arrangement of the mold-board A *a*, reversible cutter C, wedges *i i*, inclined and slotted foot B, standard E, with shoulder Z, and screw H, and the brace J, with inclined screw threaded ends *l l*, the whole substantially as and for the purposes set forth.

**28,064.** JAMES A. BYRD, Jackson, Co. Fla. Plows. May 1, 1860.

Claim. The arrangement of the bars A and B B, collar C, bolts E and I, hook F, wedge H, and depressions G and K, as described, for the purposes set forth.

**28,323.** DUDLEY WOOD and AL-BERT BYINGTON, Byron Ill. Plows. May 15 1860.

Claim. The arrangement of the tubular beam A, tubular standard B, secondary joint *b* and inside coupling bolts *a a* substantially as described.

**28,907.** J. W. SHIPP, and C. W. CRENSHAW, La Grange, Tenn. Plows.

June 26, 1860.

Claim. The arrangement of the handles H standard B ring *a* notches *l l* bar A, standard C, mold board E, heel G, and double point F the operating substantially as set forth.

**29,139. ELIJAH B. CLARK,** Tallahassee Fla. Plows. July 17, 1860.

Claim. The arrangement of the adjustable diagonal bar E, swinging foot G, swinging bar D, horizontally and vertically moving sole F, and beam A, as and for the purpose shown and described.

**29,162. LOURE GREEN,** Great Bend, Pa. Plows. July 17, 1860.

Claim. The arrangement and combination of the mold board Z, share Y, landside Q, and standard X; the whole being constructed as and for the purposes described.

**29,569. SAMUEL CANTERBERRY,** Holmes Co., Miss. Plows. Aug. 14, 1860.

Claim. The arrangement of the beam Z, helve *a*, rod *c*, bolt *c* and *d*, hands *f*, bar *b*, piece *h*, and mold-board *g*; the whole being constructed and combined in the manner and for the purposes set forth.

**29,591. JOHN S. HALL,** West Manchester, Pa. Plows. Aug. 14, 1860.

Claim. A shoe or support as a device for fitting a straight handle to the back of a mold-board of a plow, when said shoe is made as described, of cast of wrought-iron or of steel, and bolted or riveted to the mold-board, as stated.

**29,629. JAMES SMITH,** Norfolk, Va. Plows. Aug. 14, 1860.

Claim. The arrangement of the peculiar mold-board C, herein described, straight edged point or cutter A, and inclined landside bar B, with its movable heel piece D, when said mold-board extends down beyond the front end of the landside bar, and the curve of the same is formed by a straight line moving parallel to the edge of the cutter in the path of a cycloid, as and for the purposes set forth.

**29,726. P. H. STARKE,** Richmond, Va. Plows. Aug. 21, 1860.

The frame of this plow consists of an upright standard, provided with a curved flange or wing, and with a recess in the lower part of its side.

Claim. The construction and relative arrangement of the wing *c c* and mold-board *a g i j k* fastened together by means of bolt *n*, and hooks *ff*, and slots *h h*, the plow standard *b t s r*, the point *d g i j k l m*, and the landside *e r l m*, all shown and described.

**29,823. A. RODEN,** Talladega, Ga. Plows. Aug. 28, 1860.

Claim. A sliding loop brace B C M, in combination with a wedge V W, slotted swinging plate L, mold-board retaining hook O P N, and standard G; the whose constructed substantially as and for the purposes set forth.

**29,858. T. E. C. BRINLEY,** Louisville, Ky. Plows. Sep. 4, 1860.

Claim. The arrangement, on the standard D and beam A, of the ledges *a b* and shoulder *h*, to admit of the attaching of the standard to

the landside, mold-board, and beam, as shown, in connection with the brace or rod E, applied substantially as and for the purpose set forth.

**30,125. G. W. CUNNINGHAM,** Paris, Mo. Plows. Sep. 25, 1860.

Claim. The arrangement in a plow of a mold-board I G J, open at *a a a*, colter H, sharp edges M L, furrow side E, handles D C, and bearer A, as and for the purposes described.

**30,170. WALTER WARREN,** Penn Yan, N. Y. Plows. Sep. 25, 1860.

Claim. The arrangement of the beam A, when made from its forward part to near its union with the mold-board, as described, with the standard E of the fore plow D, and mold-board B, as specified, for the purposes set forth.

**30,712. ANDREW BEUKELMANN,** Langford, N. Y. Plows. Nov. 27, 1860.

Claim. Connecting the forward portion of the bottom A, of the plow, with the beam, by means of the adjustable coupling arms C D, the arm D being secured to the beam by the face *c*, and bolts *d d*, as specified, and connecting the rear portion of said bottom A, with the beam, by means of the pivoted connecting bar G, and hand screw H, the connection of the said bottom with the handles being effected by the eye *n*, and projection *o*, or their equivalents; the whole arranged, combined, and operating substantially as set forth.

**30,740. THOMAS S. LOCKHART and JOHN A. LOCKHART,** Wellington, Mo. Plows. Nov. 27, 1860.

Claim. The arrangement of a bent rod C C' C'', serving as a standard, a collar I, fastened to the inside of the mold-board J, and a curved brace *e*, in combination with the perforations H H, in the standard and the nuts G G, substantially as and for the purposes set forth.

**31,136. LORENZ WOLF,** Hamburg, Mo. Plows. Jan. 15, 1861.

The standard is raised or lowered by means of a key, for the purpose of depressing or elevating the point of the share. The strap which holds the clevis extends back, and is connected to a plate, through which the standard passes underneath the plow beam. In the back end of this plate there is a lug, through which passes a screw, which operates to turn the rear end of the plate to either side upon the standard, and serves to slew the point of the plow share to the right or left.

Claim. The arrangement of the standard H, the plate D, the lug I, and screw C, in connection with the plow beam and the plow, substantially in the manner described, for the purpose specified.

**31,172. WILLIAM JARRELL,** Trenton, Tenn. Plows. Jan. 22, 1861.

This invention consists in a peculiar manner of securing the landside of a plow, the advantages being facility in casting, perfect security

when in position, and ease of removal for repair or substitution.

Claim. The combination of the landside B, sockets d and f, bolt e, and nut g, constructed, arranged, and operating in the manner and for the purposes set forth.

**31,194. JEREMIAH SWEITZER,** Mis-hawaka, Ind. Plows. Jan. 22, 1861.

Claim. The arrangement of the beam B, handles a a', landside b, standard o, and brace c c, with flanges s, the whole constructed as and for the purposes set forth.

**31,362. JAMES B. VAUGHN,** Marion, N. Y., administrator of E. Vaughn, deceased, late of same place. Plows. Feb. 5, 1861.

The object of this invention is to produce a gauge by which the mold-boards of plows may be readily and invariably shaped so as to possess a uniformity of curvature for the purpose of securing equality of pressure upon every part.

Claim. The gauge t, constructed as set forth, in combination with the two curved directors or guides m and n, in the manner and for the purpose herein specified.

**31,407. HENRY D. ROGERS,** Grafton, Ohio. Plows. Feb. 12, 1861.

This invention consists in a method of securing the wing to the plow point by means of studs, which are kept back in slots by the pressure of the removable point against the extended portion of the wing. By turning back the set screws at the back of the plow the wing and point may be readily removed.

Claim. The rabbeted portion A, bevel-edged slots A', countersunk studs B B B, and the extended portion of the wing marked C, the whole being combined with the shoe and point D, for the purpose described and set forth.

**31,677. ISAAC RULOFSON and D. De GARMO,** Rochester, N. Y. Plows. Mar. 12, 1861.

The handle plate of the landside of the plow extends up to the under side of the beam, and is connected to the top of the standard by means of a plate on which are cast rests for the beam; these rests are provided with slots through which pass the clamping bolts, and thus a lateral or oblique adjustment may be obtained.

Claim. The arrangement of the beam B, plate f, rests u and v, slots c, and clamping bolts b, the whole being constructed substantially in the manner shown and described.

**31,903. JOHN A. PARLETT and JEREMIAH THOMPSON,** Elmira, N. Y. Plows. Apr. 2, 1861.

Claim. The arrangement of mold-board B, landside D, coupling bar C, shoe or sole H, point E, beam A, anchorate drawback F, clevis d, and handles G, the whole being constructed in the manner and for the purpose described.

**32,073. HENRY F. MANN,** Laporte, Ind. Plows. Apr. 16, 1861.

Claim. Arranging the handles on the beam and mold-board of the plow, substantially in the manner described, so that they act as stays or braces to the standard, beam, and mold-board, and at the same time offer no obstruction to the dirt, weeds, &c., in rear of the standard, and above the landside bar, as set forth.

**32,666. WILLIAM LAPE,** assignor to himself and Frederick R. Stow, Troy, N. Y. Plows. June 25, 1861.

Claim. A plow having its landside A, share B, mold-board C, and beam D, all constructed and united together in the manner shown and described.

**32,746. CANFIELD BLODGETT,** Morrison, Ill. Plows. July 9, 1861.

Claim. The improvement in the construction of the standard A, in combination with the beam B, the handles C, plate D, and brace E, all attached, constructed, and arranged substantially in the manner described and for the purposes specified.

**32,976. HENRY S. CHICHESTER,** Brunswick, N. Y. Plows. Aug. 6, 1861.

Claim. The combination and arrangement of the crossed bars C and D, pivoted together at their crossing point f, with the right and left plows A and B, so as to constitute as implement for simultaneously hillng up both sides of a row of corn, as described, the same being capable of alteration into two separate single mold-board plows, or a double mold-board plow, or a plow for simultaneously turning two separate furrows outward, or a potato-digging plow, as set forth.

**33,906. L. W. SHAFFAR,** Shelbyville, Ky. Plows. Dec. 10, 1861.

Claim. The combination of the steel mold-board when made as described, the cast-iron standard provided with the flanges on its top, the recess for the point, the projection for holding the brace, the recess on the landside and removable plate H to fit the same, with the reversible point, when the whole are constructed and arranged as and for the purposes described.

**34,092. MANASSEH GROVER,** Clyde Village, Ohio. Plows. Jan. 7, 1862.

The invention consists in attaching the plow to the draft beam by a hinge joint at the centre of resistance on the mold-board, by which it is made to conform freely to undulations in the surface of the ground, and the direct line of draft is always retained.

Claim. The draft beam c, fastened by a hinge joint, arranged and operating substantially as and for the purpose set forth.

**34,191. CHARLES BEIDLER,** Allentown, Pa. Plows. Jan. 21, 1862.

Claim. Attaching the nose F to the plow by means of the screw bolt e passing through

the projections  $\alpha$   $\beta$  of the landside and mold-board, and provided with the collar  $f$  and share brace  $g$ ; all arranged as and for the purpose set forth.

**34,262. WILLIAM MORRISON,** Chadd's Ford, Pa. Plows. Jan. 28, 1862.

Claim. 1. A mold-board for a plow composed of a steel face and an iron back, made and united to the plow substantially as described.

2. In combination with a permanent landside and a bar share, as described, a steel cutter that is united to the outside of such landside, and by a groove to the bar share, in such manner as to be adjusted thereon, as it wears away, as set forth and described.

**35,415. W. COGGESSHALL,** Finley, Ohio, assignor to himself and W. T. Coggeshall, of the same place. Plows. May 27, 1862.

To the front part of the landside which extends upward in a curved form above the mold-board, is pivoted a rod having its forward end bent downward and forked so as to fit over the upper edge of the beam. The rear end of the beam is curved and attached at its lower end to the lower part of the landside. Near the forward end of the beam is a series of holes, into one of which the forked end of the above-named rod may be bolted so that the lines of the draft may be varied as desired, to regulate the depth of furrow.

Claim. The combination of the adjustable rod  $E$  and adjustable beam  $F$ , arranged and applied to the plow as and for the purpose set forth.

**36,004. D. F. HUMPHREY,** Saline, Mich. Plows. July 29, 1862.

Claim. 1. The draft-rod  $B$  fitted in the tubular beam  $A$  and passing through the slot  $d$  in the front end thereof when arranged with the slide  $C$  and bolt  $c$ , substantially as and for the purpose set forth.

2. Attaching the standards  $D$   $F$  of the landside  $H$  to the beam  $A$  by means of the screw or bolt  $E$  and the bolt  $h$ , the former being fitted directly in the beam  $A$ , and the latter passing through an oblong slot  $g$  in the plate  $G$  of the standard  $F$ , and through a lip  $i$  at the back end of the beam, substantially as and for the purpose set forth.

**36,136. T. E. C. BRINLEY and J. G. DODGE,** Louisville, Ky. Plows. Aug. 12, 1862.

This invention relates to a method of attaching a landside or bar to the short landside or mold-board so as to admit of the landside being readily detached, if broken, and a new one adjusted in its place. A brace rod  $\alpha$  is so arranged between the handles as to insure a firm fastening of one of the handles into loops at the rear of the mold-board and serve as a brace between the mold-board and heel of the landside.

Claim. 1. The lock joints as shown in Fig. 5, shown by the letters  $d$   $e$   $f$  and  $g$ , in connection.

2. The arrangement of the brace, round or rod  $a$ , so that it operates both as a brace and fastening of the handle  $A'$  into the loops  $c$   $c$ .

**36,711. DERASTUS HARPER,** Crystal Lake, Ill. Plows. Oct. 21, 1862.

Claim. 1. The standard  $A$  constructed of wrought-iron in angle form, expanded at its lower part, and united at its upper part to form a solid flat bar, in combination with the mold-board  $B$ , landside  $C$ , and share  $E$  attached to the stand, and all arranged as set forth.

2. The bar or sole  $F$  of the landside  $C$ , constructed of wrought-iron in angle form at its back part, turned inward at its front part, and secured to the standard as shown, for the purpose specified.

**1,734. DERASTUS HARPER,** Chicago, Ill. Plow. Oct. 21, 1862. Reissued Aug. 2, 1864.

Claim. 1. The standard  $A$ , constructed of wrought-iron in angle form, substantially as above set forth.

2. The combination of the above standard with the mold-board  $B$ , landside  $C$ , and share  $E$ , attached to the standard, and all arranged as set forth.

3. The bar or sole  $F$  of the landside  $C$ , constructed of wrought-iron in angle form at its back part, turned up at its front part and secured to the standard as shown, for the purpose specified.

**37,626. ROBERT JONES,** Waynesburg, Stark Co., Ohio. Plows. Feb. 10, 1863.

Claim. The particular combination of the curved inner end  $c$  of the beam  $A$ , the curved shoulder  $b$  of the shank  $B$ , the bolts  $d$   $d'$ , the longitudinal slots  $e$   $e$ , and the transverse slot  $f$ , when the said parts are constructed and arranged in the manner and for the purposes herein specified.

2. The particular construction of the flange  $g$ , with the arm  $h$  and ears  $i$  and  $i'$ , permanently attached to a standard  $B$ , having a curved shoulder  $b$ , when used in the described combination with the landside  $C$ , mold-board  $D$ , and share  $E$ ; all arranged and connected in the manner and for the purposes set forth.

**37,740. JAMES M. DICK,** Buffalo, N. Y. Plows. Feb. 24, 1863.

Claim. The combination of the curved iron beam  $F$  attached to the landside  $E$ , as shown and described, with the mold-board  $D$  and the share  $A$ , or cutting part of the plow, when the whole are constructed and arranged as herein described and set forth.

**38,478. JACOB HAEGE,** Shiloh, Ill. Plows. May 12, 1863.

Claim. 1. Raising and lowering or adjusting the handles  $B$   $B'$  by means of the screw-

rod D, attached to the beam A, and provided with a nut F, fitted within a cap or socket d, which is secured to a bar E, attached to the handles, all being arranged as and for the purpose herein shown and described.

2. Adjusting the beam A, for the purpose of regulating the penetration of the plow, by means of the screw-rod K, fitted in the plate J, and nut L, which are hung on pivots or trunnions, as herein set forth.

**38,581. LOWRE GREEN,** Great Bend, Pa. Plows. May 19, 1863.

Claim. 1. The brace-rod b, cast solid on the extension head or main frame G, and having its opposite end provided with a dovetail to fit into the socket S' on the inside of the mold-board D, as and for the purposes set forth.

2. The colter J provided with the slot O and bolt V in its upper end, and the lugs d near its lower end for receiving and holding the point of the share S, when used in combination with said share S.

3. The arrangement and combination of the extension head or main frame A, mold-board D, share S, colter J'', lugs d' brace-rod b, and slot S', as and for the purposes set forth.

**38,803. JAMES R. BEGGS,** New Albany, Ind. Plows. June 9, 1863. Ante-dated April 18, 1863.

The object of this invention is to construct light-turn plows, so that the draught will be in a vertical plane with the middle of the mold-board, so as to lessen the side draught on the mold-board.

Claim. The combination of the beam A, mold-board B, standard C, brace D, and heel-piece E, all arranged as and for the purpose herein set forth.

**39,425. GUY M. SALSBURY, and GEORGE S. SALSBURY,** Wilson, N. Y. Plows. Aug. 4, 1863.

Claim. 1. Providing a plow with the independent short beam H, for the purpose of attaching the colter, substantially as described.

2. In combination with the short beam H, the adjustable beam A, when all the parts are constructed and arranged as herein set forth.

**39,536. G. W. N. YOST,** Nashville, Tenn., assignor to Himself and William Dilworth, Jr. Pittsburg, Pa. Plows. Aug. 11, 1863.

Claim. 1. The wrought iron standard holders A B constructed and arranged as described in combination with the beam C.

2. The combination and arrangement of the standards D E, with the standard holders A B and beam C.

**39,537. G. W. N. YOST,** Nashville, Tenn., assignor to Himself and William Dilworth, Jr. Pittsburg, Pa. Plows. Aug. 11, 1863.

Claim. 1. The construction and arrangement of the wrought iron standard holders A

B, in combination with the beam O, of the plow, substantially as herein set forth and described.

2. The combination and arrangement of the plow standards C D with the beam of the plow operating so as to turn two furrows wide or two furrows deep substantially as herein set forth.

**39,639. WILLIAM FRANK,** St. Louis.

Mo. Plows. Aug 25, 1863.

Claim. 1. The standards C, brace D, lower and top bar E G, and guide H, all combined and applied to the beam A, as shown for the purpose specified.

2. The securing of the mold board I to the standard C and bar E, by means of the hook, d and screw bolt e and the swivel screw brace J, substantially as and for the purpose specified

**39,741. HENRY MITCHELL,** Racine, Wis. Plows. Sep. 1, 1863.

Claim. The combination of the curved bar D, constructed as shown, and the brace f, with the landside C, formed as shown, standard B, share D' mold board, E handles F F, and beam A, all in the manner herein described.

**41,407. JAMES TOMLINSON,** Racine Wis. Plows. Jan. 26, 1864.

Claim. A plow having its mold-board share and colter in the form of a scoop, or spiral shell and provided with a curved landside P, substantially as set forth.

**41,997. WILLIAM HINDS,** Little Falls, N. Y. Plows. Mar. 22, 1864.

Claim. 1. A plow mold board when constructed in accordance with the following conditions, viz: all lines on the face of the mold-board, which are parallel to a surface upon which the plow rests when in its proper position for operation to be straight; all said lines to intersect two circular arches described upon vertical planes transverse to an axis from which said arcs are generated said axis to be parallel to the before mentioned horizontal surface. The radius of that arc which is nearest the rear end of the mold board to be about double the radius of that arc which is nearest the front end of the mold board. The distance between the vertical transverse planes upon which said arcs are described to be about equal to the radius of the smaller arc.

2. In combination with a plow mold board constructed as described in the preceding claim, a rim or flange m for the purpose of rendering the rear edge of the mold board more durable.

3. In combination with a plow mold board constructed as claimed above a sward cutter V attached to the plow share and secured to the standard by a removable bolt.

4. In combination with a plow mold board a cross bar constructed with feet as shown at Fig. 6, for the purpose of more rigidly attaching the rear end of the beam to the rear end of the mold board.

5. In combination with a plow mold board a land side arm N, constructed in a trough like

form and fitted to the land side with a dovetailed joint for the purpose of attaining greater security and facility of attachment.

**42,086. WILLIAM HENRY,** Wyoming Penn. Plows. March 29, 1864.

Claim. The two plows F F' attached to the adjustable bar C, which is fitted in the beam A and has a perforated semi-circular bar D attached to it through which a bolt E passes, in connection with the wheels G, and bar I, the latter being connected with the bar C, by the bars J J', and all arranged substantially as and for the purpose herein set forth.

**43,978. JOHN DEMENT,** Dixon, Ill. Plows. Aug. 30, 1864.

This invention relates to the peculiar form of the standard upon the land side of the plow the same being curved inwardly so as to avoid friction against the unplowed land; also to the manner of attaching and adjusting the handles.

Claim. The standard A, the brace B, with connecting braces g<sup>1</sup> and g<sup>2</sup> and rod m the whole constructed and arranged in the manner and for the purpose substantially as herein set forth.

**44,745. JOSHUA PIERPONT,** La Harpe, Ill. Plows. Oct. 18, 1864.

Claim. 1. The bent standard E applied to the plow, substantially as shown, so as to admit of the beam being a requisite distance above the mold-board and to the left of the landside, for the purpose herein set forth.

2. Attaching the lower end of the standard to the landside by means of a bolt h passing through an oblong slot in the standard, for the purpose of adjusting the beam in a vertical plane to regulate the depth of the penetration of the plow, as specified.

**45,036 LOURE GREEN,** Great Bend, Penn. Plows. Nov. 15, 1864.

This improvement consists in an adjustable friction wheel at the rear of the plow. By raising and lowering the shaft of this wheel the pitch of the plow is regulated.

Claim. The combination of the centre wheel or roller W with the adjustable brace rod B, constructed and operating substantially as set forth.

**46,321. E. BALL,** North Manchester, Ind. Plows. Feb. 14, 1865.

Claim. 1. The cast-iron plow beam, of curved form, longitudinally and transversely, and the lower and rear part having a straight portion or surface for the attachment of the share and mold-board, substantially as shown and described.

2. Attaching the landside D to the beam by means of the dovetail e at its front end and a bolt passing through the landside, and a flange f at the rear of the beam, as set forth.

**46,454. JOHN DEERE,** Moline, Ill. Plows. Feb. 21, 1865.

Claim. 1. The combination of the landside A with the solid lugs 3 3 3 and the perforated

ear 5, substantially as and for the purpose set forth.

2. The lug 3 cast on the landside, substantially as and for the purpose set forth.

3. The guide and fastening ear 5, in combination with the movable standard, substantially as and for the purpose set forth.

4. The combination of the landside standard and mold-board, by means and in the manner substantially as described.

5. The construction of the share C, with the perforated ear g, substantially as and for the purpose set forth.

**46,937. NORMAN PLATT,** St. Louis, Mo. Plows. Mar. 21, 1865.

In this plow the landside extends forward to form the colter, which is slightly convex on its edge, starting from the point upward at an angle of about forty-five degrees, and gradually curving more nearly to a horizontal line.

Claim. The combination of the frame b, plate a, and colter a', the several parts being constructed and arranged as and for the purpose set forth.

**47,294. JOSEPH GEORGE,** Green Co., Mo. Plows. Apr. 18, 1865.

Claim. The curved colter bar, B, it having a heel c, secured to the back brace b, and beam A, as described, in combination with the landside D, and mold-board C, they forming plow shares of various sizes to be fitted on one stock, the same being secured and operated substantially in the manner herein set forth.

**47,486. T. WINSLOW,** Cleveland, Ohio. Plows. Apr. 25, 1865.

Claim. The herein described construction or plows, the distinguishing feature being the relative position of the lower edge of the mold-board to the landside, substantially as herein set forth, thus forming in one implement a common and subsoil plow.

**49,799. WILLIAM S. SPRATT,** West Manchester, Penn. Plows. Sep. 5, 1865.

Claim. An offset or bed for the plow share of cast-steel or wrought-iron plows, said offset or bed being separate from or in connection with the mold-board, and welded to the landside, as herein described and set forth.

**3,539. WILLIAM S. SPRATT,** West Manchester, Pa. (Division A.) Plows. Patented Sep. 5, 1865. 49,799. Reissued July 6, 1869.

Claim. Making a mold-board for steel plows, with a bed for the plow share, said mold-board and share-bed being made in one or more parts, with the landside welded, bolted, or riveted to the share-bed, the whole being constructed and arranged substantially as herein described and for the purpose set forth.

**49,819. E. G. WHITING,** Northfield, Minn. Plows. Sep. 5, 1865.

This invention consists in lapping the forward portion of the wrought-metal landside of

the plow, so that it embraces the end of the plow standard.

Claim. Lapping the forward portion of the share E, around the standard C, as described and represented at b b', Fig. 4.

**51,245. JAMES, WALLACE,** Berk's Co., Pa. Plows. Nov. 28, 1865. Antedated May 28, 1865.

This invention consists in forming of one piece the landside and share by means of welding, in combination with the cutter of the same, for the purpose of cutting the stubble.

Claim. The landside C and share L, when constructed as described, in combination with the cutter F, as herein stated.

**52,407. JOSEPH FOWLER.** Rahway, N. J. Plows. Feb. 6, 1866.

Claim. The plate c, extending from the beam to the blade d, in combination with the movable or adjustable mold-board f, attached to said plate c, at any desired height, as and for the purposes set forth.

**52,539. THOMAS COTTMAN,** Cincinnati, Ohio. Plows. Feb. 13, 1866.

Claim. The extension or addition C' to the block or head C, patented by A. Gardener, Oct. 26, 1862, so as to secure the share A and the landside D, made in separate parts, substantially as set forth and described.

**52,903. T. A. STANSBURY,** Saybrook, Ill. Plows. Feb. 27, 1866.

Claim. A supplementary frame, bearing a plowshare, to be attached to the beam of an ordinary plow, substantially in the manner and for the purpose set forth.

**52,948. RICHARD L. ALLEN,** New York, N. Y. Plows. Mar. 6, 1866.

Claim. 1. Attaching and securing the colter to the plowshare or landside by a dovetail joint or connection, substantially as described.

2. So arranging or placing the colter A and brace E with respect to each other, as described, that they give increased stability and strength to the several parts of the plow.

**53,918. LEWIS GIBBS,** Canton, Ohio. assignor to Bucher, Gibls & Co., same place. Plows. Apr. 10, 1866.

Claim. A metallic fastening for uniting a plow beam and handle, made with lugs, flanges, and recesses, and united thereto in the manner and for the purpose herein described and represented.

**55,069. LIBERTY B. DENNETT,** Portland, Me. Plows. May 29, 1866.

Claim. The standard C, supported by the wing or brace F, extending from the standard to the rear of the mold-board, the standard C being so placed as to offer no resistance to the stubble or grass as it falls over the mold-board into the central cavity of the plow.

**55,279. THEODORE GILSON and NICHOLAS MARTIN,** Port Washington, Wis. Plows. June 5, 1866.

Claim. The landside D, in combination with the flanges G & H and share C, as and for the purpose specified.

**55,999. T. E. C. BRINLY,** Louisville, Ky. Plows. July 3, 1866.

Claim. A plow provided with a point E, welded, rolled or otherwise formed or permanently secured to a steel mold-board, with a hook or shoulder h at its under side to fit over the front end of the landside of the plow, substantially as herein shown and described.

**2,726. T. E. C. BRINLY,** Louisville, Ky. Plows. July 3, 1866. Reissued Aug. 13, 1867.

Claim. 1. Constructing a plow with its landside L and the standards C D connected by the flange e, and having the ears d on the post C all cast in a single piece, as described.

2. The mold-board L, with the point E formed in a single piece and having a shoulder or projection c formed on its under side to rest against the front of the landside and assist in holding the mold-board in place, substantially as described.

**56,350. CHARLES BEIDLER,** Allentown, Pa. Plows. July 17, 1866.

The vertical and horizontal vibration of the beam relative to the standard is adjusted, and the depth of furrow and width of land thus regulated by the set bolt, jam nuts, and segment bar at the rear of the beam.

Claim. The segmental guide bracket h, in combination with the screw rod g, set nuts j, handles C C, and beam A, and operating in the manner and for the purpose substantially as herein shown and described.

**56,584. HUBBARD A. MARTIN,** Jeffersonville, Ind. Plows. July 24, 1866.

Claim. 1. The wrought-iron angle beam A, connected to the mold-board a by the angle bar D, and the rod E, all constructed and arranged substantially as and for the purpose set forth.

2. The clevis H provided with an upper elastic plate e, in combination with the notched plate g, attached to the beam, substantially as and for the purpose specified.

3. The wrought iron handles B B' in combination with the angle beam A, substantially as and for the purpose set forth.

**57,724. HERBERT A. HUMMER,** Franklin Township, N. J. Plows. Sep. 4, 1866.

The landside has a dovetail projection on its inner side which fits in a corresponding groove in the mold-board, and the connection is maintained by a key.

Claim. Uniting the mold-board and landside of the plow by a concealed joint, constructed and arranged substantially as and for the purpose described.

**57,748. JOHN McKINLEY,** Bethesda, Ohio. Plows. Sep. 4, 1866.

The double-ended reversible point is capable of being used in eight different positions, and has slots in each pyramidal end for the insertion of the foot of the colter and the forward end of the share.

Claim. 1. The point *c*, constructed substantially as described.

2. The combination of the point *c* with the share *e*, colter *b*, and mold-board *a*, substantially as herein set forth.

**57,991. A. W. STOKER,** Petersburg, Ill. Plows. Sep. 11, 1866.

Claim. 1. A plow having its beam *A* pivoted and adjusted upon the standard *a*, as shown, and also having its rear end secured and adjusted upon the rod *b*, in the manner herein set forth.

2. In combination with the standard *a* set in from the landside, as shown, securing the handle *C* to the elbow iron or brace *n*, when arranged as shown and described.

**58,911. CARLISLE St. JOHN,** Keosauqua, Iowa. Plows. Oct. 16, 1866.

Claim. 1. A landside that may be changed end for end, on one end of which is a cutter so constructed that the cutter may be used or not as desired, for the purposes and substantially as described.

2. The corrugated plate *G<sup>1</sup>* and *G<sup>2</sup>*, the plate *G<sup>1</sup>* being provided with a strap and socket in combination with the beam *S* and brace rod *E*, for the purposes and substantially as described.

**59,010. JAMES HARRIS,** Kansas, Ill. Plows. Oct. 23, 1866.

Claim. The attaching of the rear plow *H* to the beam *A*, by means of a bent bar *F*, projecting laterally from the beam, and having a dovetail groove *d*\* made in it, to receive the plow standard, in combination with the front plow *E*, attached to the standard *D*, which is secured to the beam, substantially as and for the purpose set forth.

**60,172. CARLOS GLIDDEN,** Milwaukee, Wis. Plows. Dec. 4, 1866.

Claim. Coating or covering with porcelain or silicious enameling, substantially as herein set forth, such portions of the metal surfaces of plows and other ground-preparing or cultivating and planting implements as come in contact with the earth.

**61,075. JOHN W. LEWIS,** Fetterman, West Va. Plows. Jan. 8, 1867.

A reversible share and a wrought cutter, sole and point are attached to a cast-iron sheath, mold-board, and landside.

Claim. The combination with the casting *A B C* forming the sheath, mold-board, and landside of the separate reversible share, and the wrought portion *E G F*, forming the cutter point and sole, the whole substantially as described and represented.

**61,762. M. RICHARDS and J. VAN-DEGRIFT,** Princeton, Ill. Plows. Feb. 5, 1867.

Claim. 1. The combination of the beam *C*, support *B*, landside *A*, and mold-board *A'*, as set forth.

2. The arm *D*, in combination with the beam *C*, plugs *h*, clamp *F*, and mold-board *A*, as described and set forth.

**3,098. M. RICHARDS and J. VAN-DEGRIFT,** Princeton, Ill. Plows. Patented Feb. 5, 1867, No. 61,762. Reissued Aug. 25, 1868.

Claim. 1. Broadly, the beam *C* pivoted to the brace *B*, and arranged to turn, substantially as and for the purpose herein specified.

2. The combination of the beam *C*, support and brace *B*, landside *A*, and mold-board *A'*, as set forth.

3. The arm *D*, in combination with the beam *C*, plugs *h*, clamp *F*, and mold-board *A'*, as described and set forth.

**61,809. WILLIAM COOLEY,** Bunker Hill, Wis. Plows. Feb. 5, 1867.

Claim. The securing of the handles *D D'* in the position shown and described, by means of the bar *C*, bent as shown, and attached to the landside, the two handles and to the beam, substantially as and for the purpose set forth.

**62,325. CHARLES L. FLEISCHMANN,** New York, N. Y. Plows. Feb. 26, 1867. Antedated Feb. 14, 1867.

The angular cutters and the mold-board make a trench and are stocked on a frame furnished with runners.

Claim. The use of runners herein described, in combination with angular or curved cutters and a mold-board, substantially as above described.

**62,497. JOHN PARKER,** Milroy, Ind. Plows. Feb. 26, 1867.

Claim. The clamp *D*, with its attachments, constructed as described, and used with a plow operating as and for the purposes herein specified.

**62,766. DON CARLOS MATTESON and TRUMAN P. WILLIAMSON,** Stockton, Cal. Plows. Mar. 12, 1867.

Claim. 1. The curved standard *A*, with the lug *B*, and the offsets *D* and *E*, substantially as and for the purpose described.

2. The curved mold-board *F*, with its two complete edges *H* and *H'*, attached to the standard as shown, and operated substantially as and for the purpose herein described.

**3,179. DON CARLOS MATTESON and TRUMAN PANE WILLIAMSON,** Stockton, Cal. Plows. Patented Mar. 12, 1868, No. 62,766. Reissued Nov. 3, 1868.

Claim. The curved standard *A*, with the lug *B* and the offsets *D* and *E* substantially as and for the purpose described.

**5,735. DON CARLOS MATTESON and TRUMAN P. WILLIAMSON,** Stockton, Cal. Plows. Patent No. 62,766, dated Mar. 12, 1867. Reissue No. 3,179, dated Nov. 3, 1868. Reissued Jan. 20, 1874. Filed Dec. 15, 1873.

The mold-board is reversible, and the standard has a lug projecting laterally at its upper end for securing it to the beam more firmly.

Claim. 1. The curved standard A, with the lug B and the offsets D and E, substantially as and for the purpose described.

2. A plow-standard constructed with the lug B upon its upper end, as described, so that the hole b will be outside of a direct line with the holes a a, substantially as and for the purpose set forth.

**62,835. LEWIS GIBBS,** Canton, Ohio, assignor to Bucher, Gibbs & Company, same place. Plows. Mar. 12, 1867.

Claim. 1. Uniting the beam and handles of a plow by means of the castings d f and their lips e g, and a screw bolt i, substantially as described.

2. The beveled edges of the socket j with the beveled edges of the colter D, and the screw bolts k, for the purpose of holding and tightening the colter, substantially as described.

3. The bar m, made and united to and with the landside and share, substantially as and for the purpose described.

**62,881. DANIEL PETERS and JOHN W. PAULY,** Keokuk, Iowa. Plows. Mar. 12, 1867. Antedated Mar. 4, 1867.

Claim. The combination of the friction wheel H and adjustable supporting bar G with the mold-board E of the plow, when said wheel and bar are constructed and arranged substantially as herein shown and described and for the purpose set forth.

**63,377. JOSIAH FISH,** Smelser, Wis. Plows. Apr. 2, 1867.

Claim. The plate connecting the tongue and beam, marked Fig. 1, together with the plate attaching the team to the plow, and bars that the plows are attached to, for the uses as set forth in the description and specification.

**63,381. JACOB HAGE,** Shiloh, Ill. Plows. Apr. 2, 1867.

Claim. 1. As a new article of manufacture, the plow B when formed of one single piece of metal, substantially as described and set forth.

2. The plow B, when constructed with an excess of metal in that side of the mold-board and share nearest the landside, substantially as described and set forth.

**64,259. JAMES B. SKINNER,** Rockford, Ill. Plows. Apr. 30, 1867.

Claim. 1. The brace d, welded or fastened to the lower part of the standard and the landside, as and for the purpose described.

2. The arrangement as described of the plow beam, mold-board, landside, and handles, with

the curved standard and diagonal brace C, for the purposes of reducing the weight and increasing the strength of the plow, as set forth.

3. The standard constructed and connected with the landside and inner handle, for the purpose of avoiding frictions or clogging, as set forth.

4. The arrangement as described of the overlapping lips i i' on the inner front corners of the mold-board and share, for the purposes set forth.

**64,647. JAMES C. DUNCAN,** Olney, Ill. Plows. May 14, 1867.

Claim. 1. A plow embracing the mold-board A, landside B, border or sole C, and heel brace D, all being united in one and the same piece of metal which is cut and shaped substantially as described and represented.

2. The slotted rest D', when formed in one place with the plow, and employed for the support of the beam G, substantially as and for the purpose specified.

**64,906. L. O. ROCKWOOD,** Ottawa, Ill. Plows. May 21, 1867.

The plow beams are connected by side plates, by which their distance is regulated.

Claim. The adjustable extension joint, Fig. 4, constructed substantially as and for the purpose described in the foregoing specification.

**65,212. J. V. GREIF,** Paducah, Ky. Plows. May 28, 1867.

Claim. The spur or projection e formed upon the share C and fitting into the slot or hole f of the mold-board, in combination with the bolt g, substantially as and for the purpose specified.

**65,412. WM. D. MENDENHALL,** Farmington, Ill. Plow Shares. June 4, 1867.

Claim. The method of forming or shaping any plow share or mold-board, or both combined, with a concave surface of any desired radius and area extending from the breast c of the plow towards the opposite side d, or in a line parallel or nearly so, to the cut of the share.

**65,426. RUFUS PEET,** Castile, N. Y. Plows. June 4, 1867.

Claim. 1. The combination of the parts E F G H with each other and with the upright D and standard B, said parts being constructed and arranged substantially in the form and manner herein shown and described and for the purposes set forth.

2. Forming a projection d upon the landside of the forward edge of the upright D, substantially as herein shown and described and for the purpose set forth.

**65,529. EPHRAIM BALL, Jr.,** Canton, Ohio. Plows. June 11, 1867.

Claim. 1. So constructing a metal plow beam that the parts that are attached thereto can be made either of cast-iron or steel, or

both, substantially in the manner herein specified.

2. The combination of a steel mold-board, point, and landside with cast-iron plow beam, when said plow beam serves for the purpose of a support to the mold-board, point, and landside, and also for a plow beam, substantially in the manner herein specified.

3. The brace K, and bar O, when in connection with the plow beam A, substantially in the manner and for the purpose herein specified.

4. The groove *t* in the plow beam A, when arranged in the manner and for the purpose herein specified.

5. The dovetail at *h* in the top of the groove *v*, when used in connection with the projections *n* on the landsides K and M, substantially in the manner and for the purpose herein specified.

6. The attachment of the cutter P to the cast-iron plow beam A, in the grooves *a a* in said beam, in the manner herein specified.

7. The L-shaped block G in cast-iron point, when said point is used as a part of the cast-iron attachments, in the manner herein specified.

8. The block H and I, the hooks L and N, constructed and arranged in the manner herein specified.

**66,691. CHARLES A. ELTON,** Hillsborough, Ohio. Plows. July 16, 1867.

Claim. Connecting the rear end of the beam A, to the handle B, by means of the slotted and angular shaped holder *d* and the bolts *c* and *e* as described when the slots in said holder are of such a size and shape that by operating the bolt *c* the forward end of said plow-beam, can be varied and secured in any desired lateral position and by operating both of said bolts *c* and *e* the forward end of said plow beam can be varied and secured in any desired vertical position substantially as herein set forth.

**66,774. BENJAMIN F. AVERY,** Louisville, Ky. Plows. July 16, 1867.

Claim. 1. The cast standard skeleton D, constructed substantially in the manner herein shown and described and for the purpose set forth.

2. The point F and arm *f'* constructed and attached to the skeleton D, substantially in the manner herein shown and described.

3. The brace bar G, constructed with lugs *g<sup>1</sup>* and *g<sup>2</sup>* and secured to the mold board E, handle C, and landside of the skeleton D, substantially in the manner herein shown and described and for the purpose set forth.

**66,787. T. E. C. BRINLY,** Louisville, Ky., assignor to himself and J. G. Dodge, same place. Plows. July 16, 1867.

Claim. 1. The standard and landside cast in a single piece and provided with the flange C, constructed as described.

2. A plow consisting of the flanged standard as above described in combination with a sep-

arate mold board and point of cast iron, as set forth.

3. A plow consisting of the flanged standard as described in combination with a mold board and point made separately of steel as described.

**66,958. WASHINGTON C. EVARTS,** Danby, N. Y. Plows. July 23, 1867.

Claim. 1. Making a plow with the hinged mold boards E E, cam wheel D attached to the mid rib or beam frame or other convenient part and actuating the same as and for the purposes described.

2. Making the cam wheel D, adjustable by means of the hinged and slotted pieces E E for the purposes described.

3. Hanging the mold boards on a separate and adjustable frame R R for the purpose of using thereby various sized and shaped mold-boards, for various uses as described.

4. Lap hinging the various mold boards so far back of the plow points as entirely to conceal the hinges and protect them from the earth as it slides over the joint as described.

5. Extending the midrib of the beam frame B to near the wheel D, and so shaping the same in combination with the wheel as to make an even and smooth path for the wheel D, for the purpose of giving an even steady motion to the cam wheel as described.

6. The combined whole, when virtually made and operated as described for the purposes of double wide furrow plow cultivator and digger as set forth.

**66,976. C. W. GRANT,** Iona, Island, N. Y. Plows. Aug. 20, 1867.

Claim. 1. The supplemental share G, and landside F, when used in connection, with or applied to an ordinary tilage plow substantially in the manner as and for the purpose set forth.

2. The supplemental or auxiliary share K, applied to the share and mold board, substantially as and for the purpose specified.

3. The two colters H H' applied to the beam for the purpose set forth, and used in connection with the supplemental share G, and landside F, substantially as and

4. The supplemental strips L for the mold-board C, when used in combination with the supplemental share and land side substantially as and for the purpose specified.

**68,032. ALFRED C. BELT,** Coresville, Va. Plows. Aug. 27, 1867.

Claim. 1. The mold board C, made in the form shown and described and provided with a cutting edge extending to or nearly to the plow beam in the manner and for the purpose set forth.

2. The grooved reversible share G, constructed and operating substantially as described.

3. The extension double reversible cutter F, arranged and operating as described.

4. The round adjustable, self-sharpening extension point H, operating as described.

5. The false share for securing the removable cutter share and point in place as described.

6. The combination of the reversible cutter, reversible share and adjustable extension point with the false share and mold board, in the manner and for the purpose substantially as described.

**68,550. E. L. BERGSTRESSER,** Hubersburg, Pa. Plows. Sep. 3, 1867.

Claim. 1. The slotted plate or plates whereby the angle of presentation of the plow, both vertical and horizontal, is adjusted, in the manner described.

2. The block standard or plate to which the handles are connected adapted to fit and to be adjusted upon the adjacent face of the plate or angle iron attached to the plow beams, substantially as described.

3. The angle iron constructed as described, or its equivalent provided with the vertical and horizontal slots and adapted to be used in connection with the plow beams and handles or handle blocks, substantially as and for the purpose set forth.

**69,555. FERDINAND FELDHANS,** Baltimore, Md. Plows. Oct. 8, 1867.

Claim. 1. The construction, combination, and arrangement of the board shank *a*, and movable mold-board *c*, as shown.

2. The segmental clevis *d*, either horizontally or vertically arranged as described.

3. The flanged share *S*, as constructed and applied.

**69,643. J. G. DODGE,** Louisville, Ky. Plows. Oct. 8, 1867.

Claim. 1. The frame, constructed as shown and described.

2. The share *P*, having the flange *T*, arranged to fit in the recess at the front of the frame and form a section of the landside, as set forth.

3. The plate *N*, arranged to fit in the space under the bar *f*, and in connection therewith form the rear portion of the landside, as shown and described.

4. Forming the landside of a plow of stationary section *b* and the removable sections *T* and *N*, when constructed and arranged as described.

5. Securing the plate *N* to the frame by means of the notch *u* and the flange *a*, as set forth.

6. Securing the flange *T* in place by means of the point *o* fitting into the notch *o'* on the front edge of the section *b*, substantially as described.

**69,834. L. E. PALMER,** Le Ray, Pa. Plow Wheels. Oct. 15, 1867.

Claim. The construction and arrangement of the wheel *A*, shaft *B*, and braces *D* *D* *D*, and irons *E* *E*, in connection with the wheel *C*, which supports the front of the beam, as shown and described.

**69,867. JAMES VANDEGRIFT,** Princeton, Ill. Plows. Oct. 15, 1867.

Claim. The combination with the beam *d* of the flange *g'* or its described equivalent, the brace *e*, arm *j*, adjustable collar *k* and screw *m*, constructed and arranged in the manner herein shown and described, and employed to adapt the plow for either light or heavy draft, in the manner set forth.

**4,119. JAMES VANDEGRIFT,** Princeton, Ill. Plows. Patent No. 69,867, dated Oct. 15, 1867. Reissued Sep. 13, 1870.

Claim. 1. The within-described arrangement of the beam *d*, the plow *g*, and landside *h*, arm *J*, sleeve *k*, and screw-bolt *m*, operating in the manner and for the purpose herein described.

2. The construction and arrangement of the plow-post *g* with its backward-projecting flanges *g'*, when attached to the plow, as herein shown, so as to admit of the adjustment thereto of a plow-beam, in the manner and for the purpose herein described.

**69,943. GEORGE SPIEHLMAN,** Strasburg, Pa. Plows. Oct. 15, 1867.

Claim. 1. The construction of the flattened and enlarged head *b*, with its curved slot of the standard *B*, in combination with the application and arrangement of the hinge pieces *M N* forming the joint *J* of the beam and handles, when all made in the manner and for the purpose specified.

2. The slotted wedge *K*, in combination with the flanged and sunken tail piece of the point *E*, constructed in the manner and for the purpose set forth.

3. The mode of constructing and applying the sole piece *G* by ears and bolts to the base of the landside, arranged as shown for the purpose specified.

4. The extra heel piece *I*, in combination with the mold-board *D*, when made and arranged in the manner set forth.

5. The combination and arrangement of the hinged beam *A* with the handle *C*, the sole piece *G*, heel *I*, wedge *K*, flanged point *E*, and mold board *D*, when all are made and arranged in the manner shown, for the purpose specified.

**69,999. J. E. JINKINS,** Milton, Fla. Plows. Oct. 22, 1867.

Claim. 1. The adjustable share *C*, applied to the front bar *a* of the frame *A* of the plow, substantially as and for the purpose specified.

2. The adjustable side cutter or scraper *D*, in combination with the adjustable share *C*, and frame *A*, all arranged to operate in the manner substantially as and for the purpose specified.

**70,159. GEORGE T. BREWER,** Prairie du Rocher, Ill. Plows. Oct. 29, 1867. Antedated Oct. 18, 1867.

The plows are arranged in diagonal order, the front and rear plow beams branching from

the central one, and being stayed by diagonal brace bars.

Claim. The combination and arrangement of the plows B B<sup>1</sup> B<sup>2</sup> with the beams A A<sup>1</sup> A<sup>2</sup>, as described and set forth.

**70,267. GERHARD RINGEN,** Smith City, Mo. Plows. Oct. 29, 1867.

Claim. The share D and the landside E when formed of one piece and combined with the post F, having two branches f f<sup>1</sup>, substantially in the manner herein shown and described.

**71,234. A. SHUNK, Sr.,** Bucyrus, Ohio. Plows. Nov. 19, 1867.

Claim. 1. The construction of landsides of plows, with flanges in the form herein described, and for the purposes herein mentioned.

2. The construction of plow colters with an inward curve above that part which cleaves the ground, in the form herein described and for the purpose herein mentioned.

**71,376. CHARLES FORSTER,** Lebanon, Pa. Plows. Nov. 26, 1867.

Claim. 1. Forming recesses c<sup>1</sup> c<sup>2</sup> in the standard C or forward end of the mold-board D to receive the flange e<sup>1</sup> and tongue e<sup>2</sup> formed upon the forward end of the landside E, substantially as herein shown and described and for the purpose set forth.

2. Forming a recess or groove e<sup>3</sup> in the outer side of the flange c<sup>1</sup> of the landside E for the reception of the projection f' formed upon the inner side of the rear part of the cutter F, substantially as herein shown and described and for the purpose set forth.

**71,419. SAMUEL S. STARNES,** Ma-comb, Ill. Plows. Nov. 26, 1867.

The standard passes vertically through the beam, and has a spiral spring beneath the beam and lever nut above it by which it is adjusted. The rear end of the beam is traversed by a rod connecting the stilts, and is laterally adjustable thereon by a pivoted lever whose position is secured by a rack.

Claim. 1. The combination of the standard b, spring d, rod z, and beam a, substantially as and for the purpose described.

2. The combination of the lever h, rack bar k, and plow beam a, substantially as and for the purpose described.

**71,507. GILPIN MOORE,** Moline, Ill. Plows. Nov. 26, 1867.

Claim. 1. A movable wedge bolt, arranged to operate as described, for adjusting the beam of a plow laterally, substantially as set forth.

2. A cast standard, having a slot or recess formed therein to receive the movable wedge bolt, and used in combination therewith for adjusting the beam of a plow, substantially as described.

**71,560. GEORGE WATT,** Richmond, Va. Plows. Nov. 26, 1867.

Claim. 1. A plow frame or casting A, hav-

ing a neck or breast a, constructed substantially as herein described, and serving to prevent the accumulation of trash, &c., between the cutting edge and the beam.

2. The brace rod J, reflexed at both ends, as described, and employed in conjunction with the staples j b<sup>1</sup> and key b<sup>2</sup>, to connect the frame A and mold-board B, substantially as set forth.

3. The combination, with the slide or landside bar D, of the hooked-shaped projection d, staple d<sup>1</sup>, key d<sup>2</sup>, and notches a<sup>5</sup>, for adjustably securing said slide to the frame A, as set forth.

4. The combination with the frame or casting A of the handles G G', when attached by the bolts g g', substantially as described.

5. The removable extension piece F, applied substantially as and for the purpose set forth.

**3,609. GEORGE WATT,** Richmond, Va. Plows. Patented Nov. 26, 1867, No. 71,560. Reissued Aug. 17, 1869.

Claim. 1. A plow-frame or casting, A, having a flange for the support of the mold-board, constructed as represented and described, for the purpose of adapting it to support any desired form of mold-board, as set forth.

2. A plow-frame or casting, A, having a neck or breast a, constructed substantially as herein described, and serving to prevent the accumulation of trash, &c., between the cutting-edge and the beam.

3. A plow, having its landside constructed as herein represented and described, for the purposes set forth.

4. The combination, with the mold-board B, of the colter or cutter E, forming a part of the same as described, for the purpose set forth.

5. The brace-rod J, reflexed at both ends, as described, and employed, in conjunction with the staples j', b<sup>1</sup>, and key b<sup>2</sup>, to connect the frame A, and mold-board B, substantially as set forth.

6. The combination, with the slide or landside-bar D, of the hooked-shaped projection d, staple d<sup>1</sup>, key d<sup>2</sup>, and notches a<sup>5</sup>, for adjustably securing said slide to the frame A, as set forth.

7. The handles G G', both attached to the landside side of the plow, as represented and described, for the purposes set forth.

8. The removable extension-piece F, applied substantially as and for the purpose set forth.

9. The mold-board B, Fig. 10, formed for the purposes set forth.

10. The mold-board B, Fig. 11, adapted for support on the frame A, and to be removed and reversed, as represented and described.

**71,734. GEORGE GIBBS,** Canton, Ohio.

Plows. Dec. 3, 1867.

Claim. 1. The straight beam a, in combination with the detachable wooden brace b, fitted into sockets, for the purpose as herein specified.

2. The landside d, of the form and for the purposes as set forth.

2. The colter nose e, made and used as and for the purpose specified.

4. The beam *a*, and brace *b*, landside *d*, and colter nose *c* combined to form the design specified, when made and used as herein described.

**72,386. ANDREW GILMORE,** Phoenixville, Pa. Plows. Dec. 17, 1867.

Claim. 1. The clearing blade *J*, when constructed of two pieces *j, j'* attached together in such a manner as to render the blade adjustable in length.

2. The adjustable frame *F*, in combination with the wheel *W* and eccentric *G*, when used in connection with a plow, substantially in the manner and for the purposes specified.

3. The combination of the adjustable frame *F*, wheel *W*, eccentric *G*, arm *E*, lever *H*, pitman *I*, and pivoted cleaning blade *J*, when the latter is arranged to work on the left side of the colter *C*, substantially as and for the purpose specified.

4. The adjustable handles *D D*, when used in connection with a plow, substantially as and for the purpose specified.

**72,568. WILLIAM D. TITUS,** Brooklyn, N. Y. Plows. Dec. 24, 1867.

Claim. 1. The malleable iron mold-board *b* and share *S* in one piece.

2. The grooves 1, 2, 3, 4, in the adjustable colter *c* and the adjustable gauge wheel *d*, substantially as described and for the purpose set forth.

**73,209. JAMES URIE,** Evansville, Ind.

Plows. Jan. 7, 1868.

Claim. 1. The standard *C*, constructed as described, having the flange *c'* extending its entire length upon one side, and the horizontal part or landside forming two flanges upon its rear end, gradually decreasing in width toward the forward part, all cast in one piece, as herein described, for the purpose specified.

2. The point *A*, when cast in one piece, as set forth, in combination with the standard *C*, constructed as described, having the flange *c'* extending its entire length upon one side, and the horizontal part or landside forming the flanges upon its rear end gradually decreasing in width toward the forward part, all cast in one piece, as herein shown and described.

**73,550. GEORGE K. SMITH and JOSEPH STRASSER,** Allegheny City, Pa. Plows. Jan. 21, 1868.

Claim. 1. The combination of the graduate *C*, with beam *D*, constructed, arranged, and operating as herein described, and for the purpose set forth.

2. The combination of the movable cap *B* with the beam *D* and graduate *C*, constructed, arranged, and operating as herein described, and for the purpose set forth.

**74,183. CHARLES WHITE,** Blandensburg, Md. Plows. Feb. 4, 1868.

Claim. 1. The angle iron *I*, in combination with the slotted transverse bar *J* and the rear end of the plow beam, for effecting the double

adjustment of the latter, in the manner described.

2. The pivotal support *G* of the plow beam *E*, in combination with the perforated horizontal flange or lug *a* on the mold-board, as described.

3. The plow beam, provided with tubular or semi-cylindrical ribs or corrugations, substantially as described.

4. The yielding tension or draft rod, passing centrally through, or having an equivalent arrangement relative to, the beam, as described.

5. The yielding draft rod, in combination with the spring, operating as described.

6. The drum or socket, formed in or attached to the beam, in combination with the spring and draft rod, as described.

**74,474. WILLIAM B. YOUNG,** Chicago, Ill. Plows. Feb. 11, 1868.

The truss rounds and tie rods are inclined in relation to each other to render the handles rigid.

Claim. 1. The combination of the round *b* and rod *d*, with or without either or all the rounds *a* and *c* and rod *e*, substantially as described and for the purpose set forth.

2. The combination of the rounds *a, b, and c*, and rods *d, e, and f* with the handles and beam of a plow, substantially as described and for the purpose set forth.

**76,243. MATHIAS PENNING,** Leavenworth City, Kan. Plows. Mar. 31, 1868.

Claim. The combination and arrangement of the colter *A*, having a horizontal extension *B*, bolted to the landside, the rod *E*, eye bolt *n*, eye plate *e*, clip *b*, upright *d*, plow handle *G*, and plow beam *H*, all constructed and operating substantially as and for the purpose shown and described.

**76,681. CORNELIUS WILKIN,** Dundas, Ill. Plows. Apr. 14, 1868.

Claim. 1. In combination with the standard *b* of a steel or other similar plow, the bar *C*, secured to said standard by bolts or rivets *e*, and having a threaded or slotted portion, *c'*, for uniting said standard to the beam, substantially as described.

2. Securing the colter *E* by passing it through an opening *b'*, in the breast of the plow, and fastening it with a bolt or rivet, *e*, on the inside, substantially as and for the purpose specified.

**76,714. GIDEON W. COLE,** Canton, Ill. Plows. Apr. 14, 1868.

Claim. 1. The adjustable cap *a* secured to standard *b*, as described, and operating substantially as set forth.

2. The segment-faced shoe *f*, working on plate *g*, as described, in combination with the cap *a*, or equivalent attachment, arranged substantially as and for the purposes set forth.

3. The combination of the vertical and lateral adjustment of the beam, when the different parts are constructed and operated substantially as set forth and described.

**77,188. JOHN S. HALL,** Pittsburg, Pa.  
Plows. Apr. 28, 1868.

Claim. A mold-board and landside united in one piece, the former having the share and point attached to it, and the latter having the renovator or sole attached to it, and both united to a standard, A, so as to be readily removed when worn out, and replaced by another mold-board or landside in the manner and for the purpose described.

**77,547. P. H. STARKE,** Richmond,  
Va. Plows. May 5, 1868.

Claim. 1. The double beams, Nos. 6 and 7, attached to the standard, as described, for the saving of power and prevention of choking.

2. The standard or frame pieces, No. 5, having no vertical connection with the beams, to which the other parts are attached, as described.

3. The point No. 4, indented with a succession of points, in place of a share, each of its cutting parts presented nearly square to the front to prevent the plow from being wedged or pressed so hard against the land as to wear the landside, and cause considerable loss of power thereby.

**77,996. ELBRIDGE G. MATTHEWS,**  
Boston, Mass., assignor to Frank F. Holbrook, same place. Plows. May 19, 1868.

Claim. 1. The combination and arrangement of the bracket or rest *c*, the tenon *b*, and the mortised projection *a*, with the mold-board D and standard A of the plow.

2. The combination and arrangement of the duplex-pointed dog or brace *g*, the hooked bolt *e*, the nut *f*, and the eyes or staples *h h* and *i*, with the bracket, standard and the mold-board, connected by means substantially as set forth.

**78,339. GABRIEL UTLEY,** Chapel Hill, N. C. Plows. May 26, 1868.

Claim. 1. Securing the mold-board E to the plow by means of the dovetailed tongue *e'*, formed upon its inner side, fitting into a dovetailed groove formed in the forward side of the arm G, cast solid upon the side of the standard C, substantially as herein shown and described, and for the purpose set forth.

2. Securing the point F to the plow by means of the dovetailed tongue *b'*, formed upon its under side, and fitting into a dovetailed groove formed in the forward side of the arm H, cast solid upon the side of the lower part of the standard C, substantially as herein shown and described, and for the purpose set forth.

3. Connecting the mold-board E and point F to each other by means of the pin I, passing through the lower part of the said mold-board E, and through the extended end of the tongue *b'*, substantially as herein shown and described and for the purpose set forth.

4. The combination of the tongued point F, tongued mold-board E, grooved arms H and G, and standard C, with each other, substantially

as herein shown and described, and for the purpose set forth.

**78,457. SAMUEL HULBERT,** Ogdensburg, N. Y. Plows. June 2, 1868.

The several parts of the plow are connected together by keys driven between projecting surfaces, and forming, in conjunction therewith, a dovetail coupling, the object being to dispense with bolts.

Claim. The improved manner of fastening the plow and cultivator together, separately and connectedly, in the manner and for the purposes as herein described and constructed.

**78,869. CHARLES M. FRENCH,** Rochester, Pa. Plows. June 16, 1868.

Claim. So constructing a plow as that the joint between the share and the mold-board shall be about on a line at right angles to the plane of the share-bar or landside of the plow, said joint being so arranged with relation to the share and the mold-board, as to give depth and strength to the forward part of the share bar, and also, so that the several parts may be duplicated, the whole being constructed, arranged, and operating substantially as herein described, and for the purpose set forth.

**79,834. ABRAM C. JACQUES,** Leavenworth, Kan. Plows. July 14, 1868.

Claim. 1. The adjustable frame F, and roller G, to determine and guide the width of the furrow, substantially as herein described.

2. The projecting horizontal blade E, and the vertical spur cutter, *d* on the plow point as and for the purposes herein set forth.

**80,118. HENRY T. BEAM,** Palestine, Ill. Plows. July 21, 1868.

Claim. 1. The cast iron sheath made as shown, and described with scarf's formed thereon for the reception of the bar of the share and the landside as seen at C and D, Fig. 1, and the mold board as seen at Fig. 2, substantially as and for the purposes set forth and specified.

2. The share as constructed by turning up a small triangular piece to the anterior part thereof as seen at Fig. 7, which is an end view of the share at *Z*. Fig. 2, which piece forms a support for the mold board B, and also welding on a small triangular piece on the top of the share as seen at *r* Figs. 1 and 3, which protects the anterior part of the sheath substantially as and for the purposes shown and described.

3. The landside formed of the part D, of the share, and the cast iron anterior part C, all constructed and attached as shown in Figs. 1, 2 and 3, and described, and for the purpose specified.

4. The cast iron head on the front end of the beam, with its pins *m* key *n* clevis *o* and groove *t* all as shown and described, and for the purposes specified.

**81,730. JOHN BALL,** Canton, Ohio. Plows. Sep. 1, 1868.

Claim. 1. The double point I, when con-

structed as described and operating substantially as and for the purposes herein set forth.

2. The corrugated beam D, in combination with the corrugated handles E E, when arranged so as to be adjustable substantially as and for the purposes herein set forth.

**81,996. CHARLES T. GRIMES**, Garrard, Ky. Plows. Sep. 8, 1868.

Claim. 1. The modes of making handles H and K, and so arranging them on beams G, and J, that they may be used as handles for two turning plows and as helvies for two shovel plows, when the turning plows and helvies V and S, and rods T and W, are removed.

2. The mode of combining the handles H and K and beams G and J, by means of cross-bars, A a and B b and rods C c and D d, and rods E e and Z z so that the two plows are used by one person.

**82,809. S. T. DENISE**, Red Bank, N. Y.

Plows. Oct. 6, 1868.

Claim. 1. The colter when terminating at its lower end in the point A, and its upper end in the bent lip e' between which is the sharp cutting edge c the whole being constructed substantially as described.

2. The brace rod F, when constructed of a single piece uniting the beam and both handles substantially as and for the purpose specified.

**83,206. YARNALL RAKESTRAW**,

Whitehouse, Ohio. Plows. Oct. 20, 1868.

The point with which the cutter is made of one piece of steel forms a continuation to the landside and standard being attached thereto by a bolt.

Claim. The point F, and cutter G, in combination with standard C, substantially as set forth.

**84,946. W. U. HOOVER**, Daysville, Ky. Plows. Dec. 15, 1868.

Claim. The combination of the three turn plows f when arranged in relation to each other, and for adjustment in the manner shown and described.

**85,324. JAMES W. MILROY**, Galveston, Ind.; assignor to himself and S. B. Shaner, Xenia, Ohio. Plows. Dec. 29, 1868.

The right and left hand plows run in nearly the same track. The front plow throws the dirt from the row, and the rear plow throws the dirt thus pulverized back to the row.

Claim. The combination of the right and left mold board plows A and B substantially in the manner and for the purpose as herein described.

**85,342. P. H. STARKE**, Richmond, Va. Plows. Dec. 29, 1868.

Claim. A plow standard constructed and arranged so as to receive a straight wooden beam and handles, with suitable mold board and landside as shown and described.

**85,851. SAMUEL PRENTISS** and **GEORGE FLINT**, De Soto, Mo. Plows.

Jan. 12, 1869.

Claim. The slotted brace C arranged with relation to the beam A, standard B, colter D and draught-chain as herein described, for the purpose specified.

**86,839. ALBERT P. INGALLS**, Shelbyville, Ill., assignor to himself and James W. Cheney same place. Plows. Feb. 9, 1869.

Claim. 1. The frame B, of a plow when made of one piece as described to support at once the plow share the land side and the removable point as set forth.

2. The removable plow point D, when bent or cast to form a socket e substantially as described and when fitted upon the front end, of the frame as set forth.

**87,149. SEYMOUR CURTIS**, Fitchburg, Wis. Plows. Feb. 23, 1869.

Claim. 1. The plow irons a a secured to slide e e moving in slide plates d d bolted to the underside of plow beam b crosswise.

2. Staples g g on slides h h moveable in slide-plates i i bolted one on each side of plow beam b in connection with the levers j j and rod f f or their equivalents for the purposes specified and described.

**89,115. G. M. ATHERTON**, Friendsville Ill. Plows. Apr. 20, 1869.

Claim. 1. The detachable adjustable and reversible cutter J, constructed and operating substantially as herein shown and described and for the purpose set forth.

2. The bent support K, carrying the cutter J, perforated at the angle L<sup>1</sup> L<sup>2</sup> and adjusted upon the plow beam by means of the curved slot and the set screw as herein described for the purpose specified.

3. The casting E, secured to the beam B by the rod e' and adapted to be adjusted to regulate the pitch of the plow by means of the wedge shaped block F, arranged as herein and described.

4. The slotted bar O, adjusting cap P and notched arm N, combined and arranged with the draught rod M, and plow beam A for the purpose of adjusting said rod laterally so that the line of draught shall be parallel to the beam as herein shown and described.

**89,608. SAMUEL R. THOMPSON**, New Market, N. H., assignor to himself and Joseph Pinkham, same place. Plows. May 4, 1869.

Claim. 1. The combination of the tongue, with the plow beam.

2. The colter A, as separate from the beam, and supported by an arm C, or its equivalent projecting from the plow share.

3. The combination of the bar G, the forked spanner H the lever F, and their screws, with the plow beam pivoted to the share so as to operate therewith substantially as described, the lever F being applied to the handles of the plow, as set forth.

**90,246. H. B. DURFEE,** Decatur, Ill.  
Plows. May 18, 1869.

Claim. The forked standard F, with its branches c e the former attached to the beam and the latter to the beam and handle both, for securing the plow to the beam as well as the handle D, to the beam and standard as and for the purposes herein described.

**90,475. EDWARD WIARD,** Louisville, Ky. Plows. May 25, 1869.

Claim. The standard B, mold-board C, and recessed landside support D, all cast in one piece, in combination with the landside E, when secured to the recessed support D by means of the hook a and single bolt b, all arranged as described, for the purpose specified.

**5,941. EDWARD WIARD,** Louisville, Ky., assignor to Benjamin F. Avery, same place. Patent No. 90,475. May 25, 1869. Reissued June 30, 1874. Filed Apr. 2, 1874.

Claim. 1. The combination, with the standard, mold-board, and the inward-deflected support D, extending from the back to and beyond the front end of the landside edge of the mold-board, and the landside constructed as described, of the hook a and bolt b, as and for the purpose set forth.

2. The rib m on the flange or inner landside of the mold-board and standard, in combination with the landside E proper, having the recess n in it, and bolt b, substantially as described.

3. The combination, with the standard B, mold-board C, inward deflected support D, extending from the back to and beyond the front end of the landside edge of the mold-board, the landside E, and point G, constructed as described, of the hook a and bolt b, as and for the purpose set forth.

4. The combination of the hook a, rib m, recess n, and bolt b with the parts of the plow, as herein described, and for the purpose set forth.

**90,747. C. HARTZELL.** St. Joseph, Mo.  
Plows. June 1, 1869.

Claim. 1. The triangular, elongated, horizontal cutting blade or share a, attached to the landside of a plow, for the purpose described.

2. The clevis with a horizontal jaw, c, vertically operating shanks f, horizontal draft-pin or bolt i, and the set or regulating-screw l, in combination with one another, substantially as and for the purpose specified.

**91,109. FRANCIS M. FRANKLIN,** Springfield, Ohio., assignor to himself and Edward M. Doty, same place. Plows. June 8, 1869. Antedated June 24, 1869.

Claim. 1. The bent sheath C, constructed and used substantially as and for the purposes as herein set forth.

2. The arrangement of the beam A, sheath C, bent draft rod F, eye-bolt H, upright I, and handle B, all substantially as shown and described.

3. The arrangement of the handle B, up-

right I, round L, forked brace J, thimbles d d, washers e e, and nuts e and f f, all substantially as herein set forth.

**91,129. JACOB HECKENDORN,** Reading, Pa. Plows. June 8, 1869.

Claim. 1. The oblique landside A, provided with colter a, shoulder b, and round edge c, in combination with colters d and mold-board H, substantially as described.

2. Standard B, curved so as to form a continuation of the curve of the mold-board, the head being inclined over the mold-board, substantially as described.

3. The double point C, with colters d d d d, the noses f f being made and chilled in a curved line, as arranged, and held in position by lug i, in combination with the oblique round-edged landside, substantially as described.

4. The bolt or stem E, so arranged as to be adjustable laterally without changing the position of the beam in relation to the standard, substantially as and for the purposes set forth.

5. The standard bolt or stem E, with dovetail head, tongued washer O, and screw-nut, corrugated plate n, with transverse slot and transverse corrugated groove m, constructed and operating substantially as described.

6. The adjustable cutter F, having a curved shank, constructed substantially in the manner as described.

**91,354. JOSIAH LONG,** Leavenworth, Ind. Plows. June 15, 1869.

Claim. The plow-standards D, constructed, arranged, and secured to the plow-beam A, substantially in the manner herein shown and described, and for the purpose set forth.

**91,445. LEAVITT HUNT,** Weathersfield, Vt. Plows. June 15, 1869.

Claim. 1. The employment of a vertically adjusted plow-wheel, located between mold-board and landside, when the same is mounted in bearings suspended from or attached to the plow beam, substantially as and for the purposes described.

2. The combination, with the mold-board and landside of an adjustable plow-wheel, located between said parts, and one or more upright friction-rolls, mounted on the landside, in the manner and for the purposes described.

3. The detachable and adjustable skeleton landside, carrying one or more friction-rolls, and applied to the share, substantially in the manner shown and specified.

4. The adjustable wheel on forward part of plow beam, in combination with its two upright supporting-bars, vertical plate-sockets, and socket-frame, extending beneath plow beam and bolt, or equivalent means for fixing said bars in the desired position in their sockets, as shown and described.

5. The combination of the adjustable wheel between the mold-board and landside, and the adjustable wheel forward on the plow beam, for the purpose of raising the plow when going to

or returning from the field, and of supporting plow and regulating depth of furrow while the work is in progress.

**6.** The combination and relative arrangement of the adjustable plow wheel, the landside friction-rollers, and the adjustable wheel forward on the plow beam, substantially as herein shown and set forth.

**91,617. R. R. FENNER,** Urbana, Ill.

Plows. June 22, 1869.

Claim. **1.** The combination of the shaft D', bed-plate E, standard D, eye e, with the landside of a plow, for the purpose of raising or lowering the beam, substantially in the manner herein shown and described.

**2.** The combination of the guide-plate G, threaded-rod g, and plate H, for the purpose of giving the beam a lateral motion, substantially as and for the purpose herein shown and described.

**91,972. JOSIAH SHEPARD,** Newport, Me. Plows. June 20, 1869.

Claim. An improved plow, provided with a long roller D, and horizontal roller or wheel F, and having the rear lower part of the landside cut away, substantially as herein shown and described, and for the purpose set forth.

**92,277 A. G. CUMMINS and J. R. CUMMINS,** McKinney, Tex. Plows. July 6, 1869.

Claim. The plow beam A, formed with the front end B enlarged horizontally, and perforated for the purpose specified, the same being likewise provided with the seat E, longitudinally adjustable thereon, by means of the bolt f and holes g, and the adjustable standards D D and adjusting braces d, as herein set forth.

**92,408. GEORGE WATT,** Richmond, Va. Plows. July 6, 1869.

Claim. **1.** The colter-edged mold-board B B', constructed and operating as and for the purpose set forth.

**2.** The sole C, constructed as and for the purposes specified.

**3.** The arrangement of the landside bar F, the point E, and share D, by means of which the sole C is securely protected from wear.

**4.** The combination of the frame A, supplied with the rounded throat A', with the colter mold-board B B', the sole C, the point E, and share D, all substantially as and for the purposes described.

**92,698 T. E. C. BRINLY,** Louisville, Ky. Plows. July 20, 1869.

Claim. **1.** The construction of the share or point E, with its groove or recess e, substantially as and for the purpose specified.

**2.** The helve or standard C, and the mold-boards D, when so arranged as to be capable of being used as a furrow-turning plow, or as a subsoil plow, substantially as shown, and for the purpose set forth.

**3.** The construction of the mold-board and share shown in Figs. 5, 6, and 8, they having

the prolongation thereon, as shown, and the thickened portions extending along the under and upper surface thereof, substantially as and for the purpose set forth.

**92,803. A. N. EDWARDS,** Greenville, Ala. Plows. July 20, 1869.

Claim. The T-shaped bolt D, when arranged to clamp the notched plow or shovel-share C to the perforated standard, having the projecting rib a, all made and operating substantially as herein shown and described.

**2.** The brace E, when arranged in combination with the notched share C, T-shaped bolt D, and standard A, having the rib a, all combined and operating substantially as herein shown and described.

**92,898. HENRY STEM,** Mifflinburg, Pa. Plows. July 20, 1869.

Claim. **1.** The metal plates E and F, when used to attach the beam D to the share in combination with the slotted plate G, substantially in the manner and for the purpose set forth.

**2.** So constructing the top of the frame H, with a groove formed upon its landside, that two kinds of beams can be used, in the manner and for the purpose specified.

**3.** The combination of the frame H, share a, and mold board A, handles B B', plate G, and the beams D or C, when the several parts are constructed to operate substantially as set forth.

**93,036. JOHN BALL,** Canton, Ohio. Plows. July 27, 1869.

Claim. **1.** A plow-beam, constructed of two or more bars of iron or steel, when used in combination with a cast metallic standard, constructed as herein described, substantially as and for the purpose herein specified.

**2.** The plow-standard herein described, the same being composed of the standard A, with flanges a a, share-seat B, shoe-bar C, landside-bar b, post D, standard E, and corrugated segment F, and the said parts being so arranged as that the whole can be cast in a single casting, substantially as and for the purpose specified.

**3.** So constructing and arranging the landside of a plow as that the ends of said landside shall extend to the front of the plowshare and form the plow-cutter, and also, so that said landside can be turned end for end, so as to bring either of its cutter-edges into action, substantially as is herein specified.

**4.** The combined point and shoe herein described, composed of the bar M, with pointed ends x x, and flukes r s, when the same is used in combination with the plow-standard, landside, and movable share piece, substantially as and for the purpose specified.

**5.** The spring K, when used in combination with the plow-standard A D and draft-rod or chain L, substantially as and for the purpose specified.

**6.** Providing the lower ends and inner-faces of the plow-handles with corrugated irons, pivoting said handles by means of a pivot-bolt to

the plow-standard, and securing them at any desired angle with the beam, by clamping the corrugated irons against a corrugated segment on the plow-standard, by a clamping-bolt placed above the pivot-bolt, and passing through holes in the handles and a slot in the plow-standard, substantially as is herein specified.

**93,430. J. W. GILLIAM,** Elkton, Ky.  
Plows. Aug. 10, 1869.

Claim. 1. The improved plow-supporting frame, constructed and arranged for adjusting the plows, substantially as specified.

2. The combination, with the said plow-supporting frame, of the plows E, provided with the branched shanks and hinged braces, substantially as specified.

**94,366. EDWARD WIARD,** Louisville, Ky., assignor to B. F. Avery, same place. Plows. Aug. 31, 1869.

Claim. 1. The adjustable exchangeable seats D, constructed and arranged substantially as herein shown and described, in combination with the standard C and with the plow-plates E, F, G, H, or either of them, as and for the purpose set forth.

2. The combination of the circular adjustable cutter I, with the skeleton standard-frame C, when used in connection with the seats D and plow-plates E, F, G, H, or either of them, substantially as herein shown and described, and for the purpose set forth.

**94,367. EDWARD WIARD,** Louisville, Ky., assignor to B. F. Avery, same place. Plows. Aug. 31, 1869.

Claim. 1. The cast standard-skeleton D, constructed substantially in the manner herein shown and described, and for the purposes set forth.

2. The point F and arm f', constructed and attached to the skeleton D, substantially in the manner herein shown and described.

3. The brace-bar G, constructed with lugs g<sup>1</sup> g<sup>2</sup>, and secured to the mold-board E and landside of the skeleton D, substantially in the manner herein shown and described, and for the purpose set forth.

**94,636. O. OSBORN,** Trumansburg, N. Y. Plows. Sep. 7, 1869.

Claim. 1. The rack-bar G, in combination with the slotted guide B and cam H, when used to raise and lower the plow, substantially as set forth and described.

2. The spring M, when used to hold the bar G down, substantially as shown.

3. The plow D, rack-bar G, guide B, cam H, handle K, stop L, and spring M, when used and combined substantially as set forth.

**94,637. WASHINGTON F. PAGETT,** Springfield, Ohio. Plows. Sep. 7, 1869.

Claim. 1. The manner of attaching the mold-board to the beam, by means of the plate D, substantially as shown and described.

2. The combined bolt, key, washer, and tap or nut, in all applications of the device, sub-

stantially the same as the present, not only as a means of bringing and holding the parts together firmly, but as a provision against lateral strains, the head of the bolt on one side, and the washer on the other, overlapping the joint or point of contact of the parts, substantially as described.

3. The scroll or internal spiral recess washer, in any or all different combinations, and in all cases where it may be used individually.

**94,667. MOSES TESSIER,** Cairo, Ill.  
Plows. Sep. 7, 1869.

Claim. 1. Securing the frame A to the beam B by means of the lugs a<sup>1</sup> a<sup>2</sup>, bolts C D, clevis and bar E F, and slotted wedge G, substantially as herein shown and described, and for the purpose set forth.

2. The double and double-pointed mold-board I, constructed substantially as herein shown and described, and secured in place by means of the pointed forward end of the frame A and arm K, to which it is bolted, as and for the purpose set forth.

**94,841. NATHANIEL ROBINSON,** Patchogue, N. Y. Plows. Sep. 14, 1869.

Claim. 1. The arrangement of the double-beam G G' and colter I, substantially as and for the purposes specified.

2. In connection with the double-beam G G', cross-bar E, and plow A B C, the vertical screw-standard H, and adjusting nuts m m', constructed to operate substantially as and for the purposes specified.

**95,163. ABEL TEAGUE,** Madisonville, Ky. Plows. Sep. 21, 1869. Antedated Sep. 10, 1869.

Claim. 1. The metallic standard F, constructed substantially as and for the purpose described.

2. The bar, or sole D, constructed substantially as and for the purpose described.

3. The bar, or sole-brace E, when used in combination with the bar, or sole D, constructed substantially as described.

4. The metallic frame-work of a plow, composed of the standard F, and the bar, or sole D, when cast in one single piece, constructed substantially as described.

**95,251. J. C. McNUTT and A. B. FURMAN,** Strattonville, Pa. Plows. Sep. 28, 1869.

Claim. Forming a groove, c', in the part of the mold-board that is covered with the plow-point, substantially as herein shown and described, and for the purpose set forth.

**7,732. JAS. C. McNUTT,** Blairsville, and **ALONZO B. FURMAN,** Strattonville, Pa., assignors by mesne assignments to Jas. Oliver. Plows. Patent No. 95,251, dated Sep. 28, 1869. Reissued June 12, 1877. Filed Dec 4, 1876.

Claim. 1. A colter and plow-point made in one piece, the same having a curve like or

nearly like unto that of the mold-board of the plow to which it is attached, substantially as and for the purpose described.

**2.** A plow, the colter-point and mold-board of which are given the same or nearly the same curve, substantially as and for the purpose shown.

**3.** The groove *c'* formed in the part of the mold-board that is covered with a plow-point and colter, substantially as and for the purpose described.

**95,386. HENRY SELICK,** Lewistown, Pa. Plows. Sep. 28, 1869.

Claim. **1.** The slots or holes *e e'*, arranged in the rear end of the mold-board and landside of a plow, in the arc of a circle described from the pivoted point *a*, at which the handles are attached, as and for the purpose set forth.

**2.** The attachment of the handles *D* to the mold-board and landside of a plow, in the manner and for the purpose specified.

**95,487. HENRY KILLAM,** Mendon, Mich. Plow. Oct. 5, 1869.

Claim. **1.** The combination of the wing *L*, the point *I*, and the flange *D*, when all are constructed and arranged as and for the purposes aforesaid.

**2.** The combination of the beam *A*, mold-board *B*, landside *C*, handle *E*, washer *G*, point *I*, and wing *L*, when constructed, arranged and operating substantially as and for the purposes described.

**96,680. H. B. DURFEE,** Decatur, Ill. Plows. Nov. 9, 1869.

Claim. In combination with the standard and beam of a plow, the bolts *d g*, and slotted plates *e i*, so arranged in connection that the beam may be adjusted on the plow, as and for the purpose herein described and represented.

**3,753. H. B. DURFEE,** Decatur, Ill.

Plows. May 18, 1869, No 90,246. Reissued Nov. 30, 1869.

Claim. **1.** The construction and arrangement of the beam and short handle, for the purpose of leaving an open landside space and clearance for the clogging material that drops over the mold-board, substantially as described.

**2.** In combination with the short handle *D*, a brace, *e*, extending therefrom to the standard or beam, or both, substantially as and for the purpose described.

**96,907. ASAHEL FRANKLIN,** Springfield, Ohio. Plow. Nov. 16, 1869.

Claim. **1.** Constructing the mold-board of a plow from a pattern laid off substantially in the manner and for the purposes herein set forth.

**2.** The mold-board *A*, having the curve *F* in the upper portion running from the point of the plow backward, as shown and described, for the purposes set forth.

**3.** Changing the draft of the plow, by means

of notches, ratchets, holes or their equivalents, on the back or rear to the main post, for the confinement of the end of the draft rod, so that in lowering the end upon the post, the rod will form a brace to strengthen the plow when used in hard or sod ground.

**97,352. P. BURNS,** Indiana, Pa. Plows. Nov. 30, 1869.

Claim. The construction of the mold-boards, landsides, and points or shoulders of cast-metal plows in three separate sections, as herein described, for connecting together, by bolts and nuts, when the mold-board is provided with the notch *H* and V-groove *L*, and the point or spreader, with the projections fitting therein, all substantially as specified.

**97,746. ALEXANDER WRIGHT,** Allegheny City, Pa. Plows. Dec. 7, 1860.

Claim. Providing the mold-board *A* with lugs *S*, and combining it with the cutter *D*, substantially as herein described.

**99,830. T. E. C. BRINLY,** Louisville, Ky. Plows. Feb. 15, 1870.

Claim. The combination of the cast-iron standard *A* and the wrought metal heel-piece *B*, when the former is provided with a recess for the latter, substantially as and for the purpose set forth.

**180,042. A. C. JUDSON,** Grand Rapids, Ohio, assignor to E. O. Judson. Plows. Feb. 22, 1870.

Claim. The improved plow formed by the landside *A*, extended to form a cutting edge *b*, the mold-board *B*, and the standard *C*, filling the entire space between said mold-board and landside, and extending rearward and upward at the angle shown, to allow the attachment of handles thereto, all constructed and arranged as shown, and for the purpose set forth.

**100,326. MARK RIGELL,** Newton, Ala., assignor to himself, Robert D., William D., and Robert F. Joy, Milford, Ga. Plows. Mar. 1, 1870.

Claim. **1.** The pivoted colter *B*, provided with the curved arm *b*, in combination with the spring *C*, plow-beam *A*, and plow-standard *F*, all constructed and arranged in the manner and for the purpose specified.

**2.** The method of varying the position of the plow-point by means of washers *c*, of different thicknesses, substantially as described.

**3.** The adjustable plow-standard *F* and adjustable landside *D*, the latter being formed in one piece with the plowshare, in combination with the brace *E*, having its upper end curved and screw-threaded and fitted with a nut *h*, all in the manner and for the purpose specified.

**100,624. DANIEL HEIGES,** Cashtown, Pa. Plows. Mar. 8, 1870.

Claim. **1.** The part *C* of the mold-board, hinged to the part *A*, for the purpose specified, and provided with the pivoted notched arm *c*,

which is kept in engagement with the hook *d* by means of a spring *e*, substantially as herein described.

2. The reversible share *E*, plate *j*, main part *A*, hinged part *C*, and part *B*, combined together, and forming the share-side, substantially as described.

3. The landside, cast or formed with the part *I*, a recess for the colter, and with the portion *B* of the mold-board, substantially as herein described.

**100,869. M. K. DAHL**, Waupun, Wis. Plows. Mar. 15, 1870.

Claim. 1. A plow having its beam *B* connected to two standards *a b* and to a handle *C* by bolts *c e*, and *g*, in such a manner that it may be turned on the standard *a*, and be adjusted and locked to the standard *b* and handle *C*, as herein described and for the purpose set forth.

2. The plate *i* provided with the slot *z* and the serrations at its rear end, in combination with the serrated plate *j*, and bolt *g* with its nut *h*, when the same are arranged as herein described.

3. The combination of the standard *b*, having slot *i*, with its rear side toothed, with the bolt *c*, beam *B*, and nut *j*, when constructed and arranged as herein described, and for the purpose set forth.

**100,957. ROBERT J. WHEATLEY**, Duquoin, Ill. Plows. Mar. 15, 1870.

Claim. The combination of the bar and standard *A' A*, the adjustable double-wedge shaped and slotted point *E*, the triangular adjustable cutter *D*, the mold-board *B*, and share *C* with tenon *c*, the parts constructed as described, and arranged as and for the purposes set forth.

**102,162. SAMUEL D. SAYRE**, Rockford, Ill. Plows. Apr. 19, 1870.

Claim. The combination and arrangement of the beam *A*, standard *B*, share *C*, mold-board *D*, handles *E E'*, landside *F*, wheel *G* with its adjustable hinges, scrapers *h h*, and caster-wheel *I*, with iron *J*, as described, for the purpose set forth.

**103,038. HORATIO GALE**, Albion, Mich. Plows. May 17, 1870.

Claim. 1. The detachable brace *D*, provided with a slot *i*, in combination with the landside and the handle *H'*, as and for the purpose set forth.

2. In combination with the right handle of a plow attached to a brace *D*, as described, the adjustable sliding plate *p*, having thereon a stud or post *S*, for the purpose set forth.

**103,663. RUFFIN ROLES**, Carey, N. C. Plows. May 31, 1870.

Claim. The share *C*, mold-board *D*, and landside *B*, constructed as described, for mutual support.

**105,531. GEORGE WHARTON**, Jerseyville, Ill. Plows. July 19, 1870.

Claim. The plow described, provided with the curving-beam *A*, standard *B*, and plow *C*, when the plow is rigidly attached to the standard and the beam is adjusted substantially as described, for the purpose set forth.

**105,673. JOSEPH D. HALL**, Canton, Ohio, assignor to William Kingsworth, same place. Plows. July 26, 1870.

Claim. The arrangement, in a plow, of the beam *A*, with notches *a a*, standard *B* with corresponding recesses, grooved share *H*, colter *I*, draft-rod *E*, with springs *d b* and handles *G G* pivoted to the standard *B*, and made adjustable, all substantially as set forth.

**106,559. ROBERT DICKIE** and **HUGH K. JOHNSTON**, Bunker Hill, Ill. Plows. Aug. 23, 1870.

Claim. The standard *A*, screw-threaded brace-rod *B*, screw nuts *F F*, plate *G*, and clamp-bolts *K*, passing through elongated perforations *I* of said plate, all constructed and arranged with reference to the plow and beam, as shown and described, whereby the latter may be adjusted both horizontally and vertically, as and for the purpose specified.

**107,037. ROBERT GIBBS**, Brunswick, Mo. Plows. Sep. 6, 1870.

Claim. 1. The adjustable mold-board *I J K*, made in three parts, constructed and connected with each other and with the framework of the plow, substantially as herein shown and described, and for the purpose set forth.

2. The interchangeable share *L* and landside *F F'*, constructed and detachably connected with the adjustable mold-board *I J K*, standard *E*, and mold-board handle *C*, substantially as herein shown and described, and for the purpose set forth.

3. The cutter *N*, constructed and connected with the share, landside, and standard of the plow, substantially as herein shown and described, and for the purpose set forth.

4. The arrangement of the adjustable extension rods *H* with the standard *E* and beam *A*, as shown and described.

5. The draft device or clevis *O P Q R S T*, constructed substantially as herein shown and described, to enable the point of draft attachment to be adjusted at will, as set forth.

6. The spring *H*, in combination with the beam *A*, standard *E*, and nut *G*, substantially as herein shown and described, and for the purpose set forth.

7. The adjustable brace *g<sup>1</sup>*, slotted longitudinally in its forward end and transversely in its rear end, in combination with the adjustable standard *E* and beam *A*, substantially as herein shown and described, and for the purpose set forth.

8. The shares *L L'*, constructed substantially as herein shown and described; that is to say, with the line of its outer or mold-board end parallel with its front or landside end, substan-

tially as herein shown and described, and for the purpose set forth.

**107,481. CHARLES M GORDON,** La-  
Porte, Ind. Plows. Sep. 20, 1870.

Claim. The arrangement of the plows A B, having both handles attached to plow-beam A, coupling-bars  $a$   $a'$   $a''$ , adjustable brace-rods  $d$   $d$ , and draft-rod C, all combined and arranged substantially as herein shown and described.

**107,606. FRANCIS M FRANKLIN,** Springfield, Ohio, assignor to himself and Asahel Franklin, same place. Plows. Sep. 20, 1870.

Claim. 1. The method or rule herein described for laying off the mold-board and share of a plow, substantially as herein set forth.

2. The arrangement of the standard S, block X, draft-rod N, eye-bolt  $a$ , plate V, and beam O, all constructed as described, and operating as and for the purposes herein set forth.

**107,676. DAVID FULTON,** St. Helena, Cal. Plows. Sep. 27, 1870.

Claim. The arrangement and relative position of the parts hereinafter named, to wit, the curving standard D, the slotted plate C, the beam, and the mold-board, as shown and described.

**107,705. DAVID MORRIS,** Bunker Hill, Ill. Plows. Sep. 27, 1870.

Claim. The arrangement of swiveled beam A, standard B  $\wedge$ , bolts G I, slotted bracket H, and handles E F as and for the purpose described.

**108,095. B. C. BLOMSTEN,** Waupaca, Wis. Plows. Oct. 11, 1870.

Claim. The plow described consisting of the beam A, handles  $a^2$  mold-board  $a$ , point, colter, brace-rod  $b$ , and draft-attachment E, when combined as described, for the purpose set forth.

**4,810. B. C. BLOMSTEN,** Waupaca, Wis. Plows. Patent 108,095. Oct. 11, 1870. Reissued Mar. 19, 1872.

Claim. 1. The combination of the beam A, constructed as described, with the colter and clamping-iron, as and for the purpose set forth.

2. The draft device described, consisting of the threaded rod  $c$ , pivot-block  $a$ , clevis  $c^1$ , threaded rod  $c^2$ , draft-hook,  $c^3$ , and rod  $c^4$ , in combination as and for the purpose set forth.

3. In a hinged mold-board, the turned edge  $e$  adapted to cover the front edge of the landside, as described.

4. The resisting triangle formed of the beam A, bent arm  $f$  of handle F, and brace-rod g, in combination with the hinged mold-board and rod  $c^1$ , as described.

5. The plow described, consisting of the beam A, handles, mold-board E, point G,

colter D, brace-rod I, and draft attachment, when combined as described, for the purpose set forth.

**108,247. ASAHEL FRANKLIN and FRANCIS M. FRANKLIN,** Springfield, Ohio. Plows. Oct. 11, 1870. Antedated Oct. 1, 1870.

Claim. The combination of the beam J, draft-rod P, with shoulder f, upright K, brace e, angular brace N, handles O O, forked sheath I, and ratchet plates b d, all constructed and arranged substantially as and for the purposes herein set forth.

**108,699. MARTIN L. GIBBS,** Canton, Ohio. Plows. Oct. 25, 1870.

Claim. 1. The standard C, constructed with the raised flanges  $k l m n o p r$ , in combination with the cast-iron mold-board P, and share U, having the countersunk grooves  $k' l' m' o' m' m' p' r'$  formed in their bearing-faces, whereby either the cast-iron mold-board or share may be replaced by a cast steel mold-board or share, without changing other parts or affecting the form or position of the wearing faces of the plow, substantially as before specified and shown.

2. The combination of the plow standard C provided with the countersunk holes  $g^2 g^2$ , landside H, provided with raised bolt-hole flanges  $g^1 g^1$ , and handle-flange K, beam-handle B, beam A, the several parts being constructed and arranged substantially as described.

3. In the construction of plows, the handle-fastening, L M N, consisting of the flat head-plate L, and the bent clamping-bolts M N, and the several parts constructed and arranged substantially as described.

**4,965. MARTIN L. GIBBS,** Canton, Ohio. Plows. Patent 108,699. Oct. 25, 1870. Reissued July 9, 1872.

Claim. 1. The standard C, constructed with the raised flanges or projections  $k l m$ , in combination with the interchangeable mold-boards P, substantially as and for the purpose set forth.

2. The standard C, provided with raised flanges or projections  $p m o r$ , in combination with the share U, having recesses or countersunk grooves  $p' m' n' o' r'$ , substantially as and for the purpose set forth.

3. The standard C, having raised flanges or projections on the seats for the mold-board and share, with corresponding grooves, holes or recesses in the mold-board and share so arranged in relation to each other as to admit an interchangeable adaptation of mold-boards of sheet-steel and cast-iron of different thicknesses to the same standard, so arranged that the faces thereof shall be even with the connecting-share, without affecting the "set" of the plow, as and for the purpose substantially set forth.

4. In the construction of plows the beam and handle fastening L M N, consisting of the flat head-plate L and bent clamping-bolts M

N., and the several parts being constructed and arranged substantially as described.

**108,730. GEORGE W. REAM,** Canton, Ohio. Plows. Oct. 25, 1870.

Claim. The plow-standard A, having the triangular depression k on its share side, and the depression E with its narrow front bearing-face d, and the small rear bearing-face e, on the landside, arm F, and the cast-iron share B, with the raised piece b cast on its under side, when each is formed and constructed substantially as described, and all are combined as set forth.

**108,892. EDWARD DIETSCH,** Findlay, Ohio, assignor to himself and Jacob C. Powell, same place. Plows. Nov. 1, 1870.

Claim. The arrangement and combination of the tongue a, beam B, hanger D, and handle b, all as shown and described.

**109,290. THOMAS E. C. BRINLY,** Louisville, Ky. Plows. Nov. 15, 1870.

Claim. 1. The mold-board D, the cross-section of which approaches, on line 22 of Fig. 1, in contour, the curve of a semi-parabola, substantially as shown and described.

2. The combination and arrangement of the revolving colter E, bar or bars E', and upright colter F, substantially as set forth.

**100,291. THOMAS E. C. BRINLY,** Louisville, Ky. Plows. Nov. 15, 1870.

Claim. The standard A, constructed with the ears A<sup>2</sup> and A<sup>4</sup>, and flange A<sup>1</sup>, in combination with the mold-board B, flanged share C C', and landside D, the parts being united together substantially in the manner set forth.

**109,340. ORNAN OSBORN,** Erie, Pa. Plows. Nov. 15, 1870.

Claim. In combination with the plow-beam A, provided with its grooved block C, with cog-teeth b b, the crooked beam B, pivoted to the beam A at its front, having a cam, and flange, a, at its rear, and with segment D and lever E, all constructed as shown and described.

**109,352. HUGH SMITH,** Moline, Ill. Plows. Nov. 15, 1870.

Claim. 1. In a plow-beam, constructed as described, the projection c, in combination with the socket d on the landside, when arranged to operate as and for the purpose set forth.

2. The plate f interposed between the beam A, and the standard B for adjusting the plow, as set forth.

**109,929. JOHN K. ODELL and WILLIAM S. LITTLE,** Deckertown, N. J., assignors to G. W. Coe, same place. Plows. Dec. 6, 1870.

Claim. The one-piece cast-iron beam and standard A B, having flanges b b' d' e' and sockets b<sup>2</sup> combined with brace F, mold-board

E, share D C', and landside C, as and for the purpose described.

**110,336. JAMES O. BILLING,** Halcyon Dale, Ga. Plows. Dec. 20, 1870.

Claim. The within described plow, consisting of the beam A, handles B B, standard D, land side C with ear, f and share G, all the parts being constructed, arranged and operating substantially as set forth.

**110,506. ARTHUR C. SMITH,** Joyner's Depot, N. C. Plows. Dec. 27, 1870.

Claim. The hinged part E<sup>2</sup> of the mold-board, E<sup>1</sup> E<sup>2</sup> and pivoted brace F, in combination with each other with the stationary part E<sup>1</sup> of the said mold board E<sup>1</sup> E<sup>2</sup> and with the frame work of the plow substantially as herein shown and described and for the purpose set forth.

**110,660. MARQUIS R. JONES,** Walworth, Wis. Subsoil-Plows. Jan. 3, 1871.

Antedated Dec. 31, 1870.

Claim. 1. A standard of a subsoil plow with its rear edge serrated or notched substantially as described, in combination with a brittle pin I, and draft rod F, when the whole are constructed and connected together substantially as and for the purposes described.

2. Axle, beam A', caster wheel K' part b, and set-screws k k when the whole are constructed and connected together substantially as and for the purposes described.

**111,055. ELIAS HAYMAN,** Columbus, Ga., assignor to Blount, Haiman & Brother. Plows. Jan. 17, 1871.

Claim. The arrangement of the plow point E, mold-board D landside F, slotted standard C and screw bolts c<sup>3</sup> c<sup>4</sup> c<sup>5</sup> c<sup>6</sup> as and for the purpose specified.

**7,724. ELIAS HAIMAN,** Columbus, Ga. Plows. Patent No. 111,055. Jan. 17, 1871.

Reissued June 5, 1877. Filed Dec. 22, 1876.

Claim. 1. In combination with the beam A, the double adjustable standard C, with the point E, mold board D, and land side F arranged thereon all substantially as shown and described.

2. The combination of the curved double adjustable standard C and beam A, the standard being pivoted to the beam at c<sup>2</sup> and having its upper portions extended along the beam all substantially as and for the purpose specified.

3. The arrangement of the plow point E, mold board D, landside F, standard C, and bolts c<sup>3</sup> c<sup>4</sup> c<sup>5</sup> and c<sup>6</sup> as and for the purpose specified.

**111,854. JOHN LANE,** Chicago, Ill., assignor to Hapgood & Co., same place. Plows. Feb. 14, 1871.

Claim. The plow block K, V-shaped in cross section and formed as described to have affixed thereto the landside share mold-board and standard.

**6,320. JOHN LANE,** Chicago, Ill., assignor by mesne assignments to Hapgood & Co., St. Louis, Mo. Patent No. 111,854. Feb. 14, 1871. Reissued Mar. 7, 1875. Filed Feb. 29, 1875.

Claim. 1. The plow block, K, V-shaped in cross section and formed as described to have affixed thereto the landside share, mold board, and standard.

2. The removable plow block K, perforated at g N, W, and m whereby to it is bolted the standard at g the landside bar at m the share at W, and the mold board at N, arranged substantially as and for the purposes shown.

**111,965. JAMES OLIVER,** South Bend, Ind. Plows. Feb. 21, 1871.

Claim. 1. A colter and plow point formed of one piece when said colter has the same curve given it (or nearly so) that the mold-board of the plow has to which it is to be attached substantially as shown and described.

2. In combination with the standard c when curved as described, the curved grooved and slotted brace e and beam d when all the parts are arranged as and for the purpose specified.

**112,302. HARVEY WASHBURN,** Pultney, N. Y. Plows. Feb. 28, 1871.

Claim. The beam D, mold board A, landside B, standard B' brace rods E F in combination with the handles A' when the handles are on a line with the beam at the heel of the mold board as set forth.

**112,508. S. M. STEWART,** New Harrisburg, Ohio. Plows. Mar. 7, 1871.

Claim. The connecting piece C, in combination with the slide E, substantially as and for the purpose set forth.

**113,390. JOEL L. BOND,** Marshalltown, Iowa. Gang and Subsoil Plows. Mar. 4, 1871.

Claim. 1. The arrangement of the beams A A' cross bar H, bent brace J plates G G' clamps a a, and b bolt and nut d and the plow, bars C C, all substantially as shown and described and for the purposes herein set forth.

2. The arrangement with the frame beams A A' of the adjustable rods K K' frame L bar e loop f seed drill box N, and gauge wheel M, all constructed and operating substantially as set forth.

**113,436. JOHN LANE, Jr.,** Chicago, Ill. Plows. Apr. 4, 1871.

Claim. In combination, the landside-bar B, steel plate E, mold-board W, share A, and flange K, all as herein set forth.

**6,405. JOHN LANE, Jr.,** Chicago, Ill., assignor to Hapgood & Co., and Furst and Bradley. Plows. Patent No. 113,436. Apr. 4, 1871. Reissued Apr. 27, 1875. Filed July 28, 1874.

Claim. 1. The share A, having vertical portion K and under portion w, forming a socket perforated at a', and the vertical portion form-

ing a shoulder on a line with the upper edge of the same, substantially as and for the purpose set forth.

2. The share A, having vertical portion K, ending on a line with the upper portion of the share, and the landside E, ending with a vertical shoulder against the rear portion of the part K, the vertical portion of the share A and the landside attached, by bolts a' and n, directly to the bar B, furnishing the entire support, all combined as and for the purpose herein specified.

3. The share A, having the vertical portion K, with perforation a' forward of the upper edge of the share, in combination with the landside E and bar B, bolted together at n n, substantially as and for the purpose set forth.

**113,484. JEROME BLANCHARD,** Iowa Falls, Iowa. Plows. Apr. 11, 1871.

Claim. The combination of the landside B, share C, connecting-bars D, bars G G with adjustable connections d d, and the wheels a b and h h, all constructed and arranged substantially as and for the purposes herein set forth.

**113,733. WALTER BRITTON,** Truro, assignor to himself and Elmwood Mining and Manufacturing Company, Elmwood, Ill. Plows. Apr. 18, 1871.

Claim. 1. The braces J I, cross-bar H, and nuts i' i'', when arranged to operate with the beam G and extended standard D, substantially as and for the purpose specified.

2. The brace K, lug J, and nuts k k, when arranged to operate with the beam G and extended standard D, substantially as described, and for the purpose specified.

**114,237. ADAM WEABER,** Lebanon, assignor to himself and L. L. Heiks, Clear Springs, Pa. Plows. Apr. 25, 1871.

Claim. The projection F on the mold-board B, and the corresponding opening E in the plate D, as and for the purposes specified and set forth.

**115,701. CHARLES F. CHAMBERS,** Hutsonville, Ill. Plows. June 6, 1871.

Claim. 1. The combination of the forked and slotted sheath C c' G, share F f, shaft H, provided with a collar h, nuts J L, and convex wheel I i i', as and for the purpose set forth.

2. In combination with the handle B, sheath C, and adjustable wheel I, the adjustable guards N n' and O o z, as and for the purpose set forth.

**115,907. JOHN T. STORY,** Magnolia, Ark. Plows. June 13, 1871.

Claim. The screw-threaded standard A, cross-bar a, pivoted handles D, forked plow-beam C d c, adjustable brace i, and plowshares B j, all relatively constructed and arranged as herein shown and described, for the purpose specified.

**116,048. MARTIN L. GIBBS,** Canton, Ohio. Plows. June 20, 1871.

Claim. 1. The colter-head C and tension-bolt F, in combination with the colter E, plow-beam A, and standard B, the several parts being arranged as and for the purpose specified.

2. The arrangement of the colter E in a flaring seat in the colter-head C or beam A, and between the side set-screws *b b*, arranged as described, as and for the purpose specified.

3. The combination of the pitch-screw *a*, colter-head C, colter E, and tension-bolt F, the several parts being arranged in the manner and for the purpose specified.

**4,943. MARTIN L. GIBBS,** Canton, Ohio. Plows. Patent No. 116,048, June 20, 1871. Reissued June 11, 1872.

Claim. 1. The colter-head C and tension-bolt F, in combination with the colter E, plow-beam A, and standard B, the several parts being arranged as and for the purpose specified.

2. The arrangement of the colter E in a flaring seat in the colter-head C or beam A, and between the side set-screws *b b*, as arranged, as described, and for the purpose specified.

3. The combination of the pitch-screw *a*, colter-head C, colter E, and tension-bolt F, the several parts being arranged in the manner and for the purpose specified.

4. The tension-bolt F, colter E, and colter-head C, in combination with the standard B, and a plow-beam, the tension-rod being secured directly to the colter, substantially in the manner as and for the purpose set forth.

**117,024. EDWARD WIARD,** Louisville, Ky., assignor to Benjamin F. Avery, same place. Plows. July 11, 1871.

Claim. 1. The standard A, with extended support *a* and with landside B united thereto and terminating at *g*, leaving a shoulder for the plow-point D', substantially as and for the purpose set forth.

2. The frame G, constructed with lugs *p p*, bent and adapted to receive through them bolts which secure the mold-board handles to the plow, substantially as described.

**117,335. MONTGOMERY P. ROSE,** Napa, Cal. Plows. July 25, 1871.

Claim. 1. The lever D adapted to swing upon the arc F and thus change the relative position of the beam and share, as described.

2. The combination of the beam A and the share with the lever D and its connections, and the projection C swinging on bolt B, as described.

**117,574. PATRICK HENRY STARKE,** Richmond, Va. Plows. Aug. 1, 1871.

Claim. The plow-standard A, having projection *a'* overlapping the top of the beam, and the arc-slotted projection F, combined with a beam E, having the studs G H, to enable the said beam to be turned on a center at G, and thereby regulate the depth of the plow.

**117,801. SAMUEL D. MORRISON, DENNIS A. MORRISON, and JOSEPH B. MORRISON,** Fort Madison, Iowa. Plows. Aug. 8, 1871.

Claim. The arrangement of beam C and handles D D' with slotted plate H, standards G G', bolts I I, rod E, and nuts J J, constructed and operating substantially as and for the purpose specified.

**5,160. SAMUEL D. MORRISON, DENNIS A. MORRISON, and JOSEPH B. MORRISON,** Fort Madison, Iowa. Plows. Patent No. 117,801, Aug. 8, 1871. Reissued Nov. 26, 1872.

There are two standards, both of which are attached to the landside and to an adjustable beam-plate. The beam-handle terminates at the beam, to which it is secured. The mold-board handle is secured to the mold-board and to the beam-handle by cross-pins and braces. The construction leaves the heel of the landside free.

Claim. 1. The combination of an ordinary wood plow-beam C, mold-board A, long handle D secured directly thereto, and short handle D' secured to the rear end of the beam at an angle of forty-five degrees, or thereabout, and connected by the brace E' to the mold-board handle, all substantially as shown and described.

2. The arrangement of the beam C and handles D D' with slotted plate H, standards G G', bolts I I, rod E, and nuts J J, constructed and operating substantially as and for the purpose specified.

**118,769. LEVI S. WILSON,** Wabash, Ind. Plows. Sep. 5, 1871.

Claim. The brace E, constructed as described, and provided with bent end *b*, pin *d*, and hook *h*, substantially as and for the purposes herein set forth.

**119,433. JAMES C. VERTREES,** Gallatin, Tenn. Plows. Sep. 26, 1871.

Claim. A plow constructed substantially as described, and having its standard B and handle C provided with a series of holes for adjusting the beam D thereon, as herein set forth.

**119,618. MARTIN KENNEDY,** Chicago, Ill. Combined Plow and Stock for Cultivators. Oct. 3, 1871.

Claim. 1. The stock *a*, constructed with the double chamfered flange *b*, point *a'*, sockets *r*, and lugs *p*, whereby it is adapted for the attachment of various implements necessary to the performance of different functions, as shown and described.

2. In combination with the stock A, provided with the double chamfered flange *b* or beveled ridge *e*, the mold-board *g*, provided with the corresponding flange *j*, as specified.

**120,718. SOLON COOLEY,** Clarkston, Mich. Plows. Nov. 7, 1871.

Claim. 1. The beam-plate A, having the

parts A' A'', and A''' of the form shown, all cast in one piece from a solid pattern, substantially as described.

2. The plow colter J', provided upon its landside with a recess which corresponds to and receives the adjustable standard J, in combination with said standard, substantially as and for the purpose specified.

**121,567. WILLIAM YOST,** Goshen, Ohio. Plows. Dec. 5, 1871. Antedated Nov. 25, 1872.

Claim. The plow described, consisting of the bar A, curving standards a a', shares B B', share-bars C C', and handles D D', the parts being relatively arranged, as described.

**123,957. JAMES WALLACE,** Sherry Pa. Feb. 20, 1872.

Claim. The combination and arrangement of the mold-board D, recessed to receive the cutter c, the flanch D', shouldered and recessed on the outside to receive the landside E, and grooved or shouldered on the inside at a'' to receive the end of the plow-point, and the shank e, cast as an extension of the flanch and mold-board, and provided with a head or cap, D<sup>2</sup>, all as described, and for the purpose specified.

**125,478. JAMES M. MOYERS and GEORGE W. MOYERS,** Gordonsville, Va. Plows. Apr. 9, 1872. Antedated Mar. 29, 1872.

Claim. 1. The reversible point G, provided with flanges or ribs, as specified, in combination with the landside K, provided with the curved slot or recess d, said parts being connected as set forth.

2. The construction and arrangement of the mold-board, landside, point, slide, and share, as specified.

**126,507. FREEMAN R. WILSON,** Columbus, Ohio. Plows. May 7, 1872.

Claim. The combination of the saddle G, constructed with shoulders a, offset n, and recesses v and y, the share F constructed with flanches f and o, substantially as specified.

**127,110. HOELL B. SMITH,** Tremont, Ill. Plows. May 21, 1872.

Claim. The plow herein described, consisting of the curved share bar B, curved standard C, curved brace d', mold-board A, share A', and landside plate B' forming the colter, substantially as specified.

**127,650. GILLUM SHELTON,** Normal, Ill. Plows. June 4, 1872.

Claim. The combination of the vertically-grooved cast-iron standard A, with front and rear extensions at its top and rounded, as described, wrought-iron bar G connected to the beam, standard, and landside, beam C, bent metal straps D with prong extending in rear of the beam, and the handles E, all the parts being constructed and arranged substantially as herein set forth.

**5.530. GILLUM SHELTON,** Normal, Ill. Patent No. 127,650. June 4, 1872. Re-issued Aug. 12, 1873. Filed July 7, 1873.

The upper portion of the plow standard is bifurcated and secured to the beam by two bolts. A supplementary bolt passes from the sole to the beam in a recess in the rear of the standard. The upper part of the standard is longer than usual, so as to give a high position to the beam, and the standard is thick and rounded to avoid clogging.

Claim. In combination with the beam C and mold-board B, the elongated standard A, having a broad rounded and polished front edge, a seat and lugs, a a, for the attachment of the mold-board, and its upper end having two arms d d, and a bolt or bar, D, substantially as and for the purpose specified.

**127,970. ARTHUR B. FARQUHAR,** York, Pa. Plows. June 18, 1872.

Claim. The beam A, double standard C, adjusting-brace F, removable sole E, and sole-brace D, when all are combined to operate as set forth.

**128,061. JAMES OLIVER,** South Bend, Ind. Plows. June 18, 1872.

Claim. 1. The standard C, having the back upward twist a from the landside and the straight upper part f, in combination with a sloping landside, E, of the plow and beam A thereof, as and for the purpose set forth.

2. The standard C, having a back upward twist a' from the landside, and the straight upper part f and projecting flange or rib b, constructed substantially in the manner as described, and for the purpose specified.

3. The colter-bit K, having the sharp point d and the circular cutting-edges e, so constructed that it will throw the strip into the furrow, substantially as set forth.

4. The slotted arm N, constructed with a cross-piece c, in combination with the hook O or its equivalent, substantially in the manner and for the purposes specified.

**128,141. WILLIAM K. HARRELL,** Clarinda, Iowa, assignor to himself, Thomas B. Chamberlain, and Dewitt C. Chamberlain, same place. Plows. June 18, 1872.

Claim. The combination, in a sod-plow of the narrow mold-board E, flat share D, and landside B, when each is relatively constructed and arranged to operate as and for the purpose described.

**6,804. WM. K. HARRELL,** Clarinda, Iowa, assignor to himself T. B. Chamberlain, and D. C. Chamberlain. Plows. Patent No. 126,141. June 18, 1872. Reissued Dec. 14, 1875. Filed Nov. 1, 1875.

Claim 1. In a sod plow, the flat-extended share D, adapted to cut the sod completely across the width of the furrow before it begins to turn or is turned over, substantially as set forth.

2. In a sod-plow, the narrow mold-board or

turning device, adapted to turn the sod after it is cut without bearing upon its whole width, substantially as set forth.

3. The combination, in a sod-plow, of a flat extended share for cutting the sod completely across the furrow in advance of the mold-board, and a narrow mold-board or turning device which turns the sod without bearing upon its whole width, substantially as set forth.

**128,245. WILLIAM PARRISH,** Dayton, Oregon. Plows. June 25, 1872.

Claim. 1. The caster E, beam G, adjustable screw C, lever K, and cross-bar a, constructed, combined, and arranged in a plow, substantially as and for the purpose specified.

2. In a gang-plow having two or more beams with caster and lever attachments, as described, the slotted connecting-bar C, slotted beam B, and pivot-pin C, constructed and arranged substantially as and for the purpose specified.

**129,112. JAMES W. DOWNS,** Bowdon Ga. Plows. July 16, 1872.

Claim. The combination of the plow beam A, bar B, standard C, braces D E handles G G dovetailed landside H, share I, plate J, all constructed and arranged substantially as and for the purposes herein set forth.

**129,296. THOMAS E. PUTNAM,** Winneconne, Wis. Plows. July 16, 1872.

A double brace secured to the landside mold board and beam and made adjustable on the side of the beam and on the inside of the mold-board, so as to regulate the depth of furrow to be cut off.

Claim. The arrangement with the beam A, and plow proper of the brace E, formed in two parts and made adjustable as set forth for the purpose specified.

**129,364. WILLIAM RALL,** South Bend, Ind. Plows. July 16, 1872.

The plow-standard has two braces projecting rearwardly from the same to the rear ends of which is secured the short heel or landside.

Claim. The combination of the standard A brace arms b b' with the detached landside G, having the curved points as described.

**129,964. CHESLEY T. KEE,** Chester, C. H., S. C. Plows. July 30, 1872.

The plow standard and shovel and rings, with device for fastening the same to the standard.

Claim. The combination of the standard having the slotted foot E, notched across its upper surface with the mold board G, or shovel K, and wings H, having the L-shaped lugs h, substantially as specified.

**130,115. JOHN W. ELLIOTT,** Locust, Mt. Va. Plows. Aug. 6, 1872.

Claim. 1. The forked wedge M, in combination, with the handles H H, block a bolt L, and beam A, as and for the purpose set forth.

2. The handles H H, rising from the landside and provided with adjusting holes h h beam

A, adjustable as described, curved standard D, having a bent portion E and braces G K all constructed and operated as set forth.

**130,180. CHARLES BATES,** Warsaw, Ill. Plows. Aug. 6, 1872.

Two plows are arranged on united beams; can be used as a gang, subsoil, or single plow.

Claim. The beam A, having the adjustable standard K, and adjustably secured to the handle C, and having the detachable angular beam E, when the several parts are constructed and arranged to be operated as and for the purpose specified.

**130,196. EDWARD S. COOK,** Laurel Grove, Va. Plows. Aug. 6, 1872.

Claim. 1. The landside D, provided with the angular offset or block d in combination with the foot e recess e<sup>2</sup> said parts being secured together by the bolt and nut d<sup>1</sup> d<sup>2</sup> all constructed and fitted together as shown and described.

2. The skeleton frame C consisting of the foot e standard e<sup>1</sup> and rearwardly curved flange e<sup>2</sup> adapted with the share to serve as a subsoiler and with the addition of the mold board as a turn plow as described.

**130,773. CHARLES URIE,** Evansville, Ind. Plows. Aug. 20, 1872.

The plow is made of thin steel plates and a saddle of soft metal is interposed between them to prevent their breaking by concussion.

Claim. The combination with a mold board and share and landside made of thin steel plates the soft metal saddle F consisting of a curved plate g vertical flange g<sup>1</sup> and the lateral rib g<sup>2</sup> interposed between the share and landside substantially as specified.

**130,797. ROBERT R. FENNER,** Urbana, Ill. Plows. Aug. 27, 1872. Ante-dated Aug. 24, 1872.

Claim. As an improvement upon my former patent granted the 22, of June 1869 I claim the curve T-shaped guide E in combination with the curved guide plate F constructed and arranged to operate substantially as shown and described.

**131,243. ANDREW J. BONANDER,** Rockford, Ill. Plows. Sep. 10, 1872.

Claim. The herein described plow, consisting of the handles B, beam A, braces B', plates A<sup>1</sup> A<sup>2</sup> bolted to the beam the draft yoke C C' constructed as set forth, and adjusted upon the beam by bolt e<sup>2</sup> the draft rods D D the bolt e<sup>1</sup>, clasped by the plate A<sup>2</sup> the standards E E land side F, and mold board G, these parts being constructed combined and arranged for joint operation as set forth.

**131,434. JOSEPH GILMER,** Monticello Fla. Plows. Sep. 17, 1872.

Claim. 1. A gouge or concave point substantially as described, in combination with the a plow mold-board a set forth.

2. The slotted post E and slotted plate C, with suitable binding screws, in combination

with the handles B B substantially as set forth.

3. In combination with the post E, the beam G, and slotted brace H, with suitable binding, screws to render said beam adjustable in the manner substantially as set forth.

**132,295. SEWALL J. LEACH,** Tuscaloosa, Ala. Plows. Oct. 15, 1872.

Claim. The hook E cast solid upon the landside, C, and the brace F, cast solid upon the mold-board A and standard B in connection with each other for securing the said landside in place substantially as herein shown and described.

**132,679. FRANCIS M. McMEEKIN,** Orange Springs, Fla. Plows. Oct. 29, 1872.

Claim. 1. A mold board or mold board saddle having on its under side the angular shoulder, E, and faucet E' in combination with a standard A, formed by so bending a single bar of metal as to produce the arms  $\alpha$   $\alpha'$ , diverging backward and forward and loop  $\alpha^2$  substantially as specified.

2. A mold board or mold board saddle constructed with the angular shoulder E faucet E' and flange F arranged substantially as specified.

**133,850. HENRY C. CODFREY,** Elizabeth City, N. C. Cotton Plows. Dec. 10, 1872.

Claim. 1. The combination with a right-hand turn plow of a left hand plow E, of smaller dimensions running less deeply and attached to the landside of large plow as set forth, so that the fine scraped soil will be gathered up to the plants.

2. A plow E, provided with extension e having groove  $e^1$  and shoulders  $e^2$   $e^3$  and perforated lug  $e^4$  as specified, to adapt it to be held to a correspondingly constructed landside by two bolts.

**134,716. WILLIAM M. WATSON,** Tonica, Ill. Plows. Jan. 7, 1873.

Claim. 1. A plow having the standard B and braces E, constructed, arranged and adapted to receive, interchangeably, the wheel F and landside H, substantially as specified.

2. The shield G, in combination with the plow, as described, and for the purpose specified.

**135,289. JOSEPH W. REED,** Careyville, Mo. Plows. Jan. 28, 1873.

Claim. The perpendicular standard E attached at one end to beam A, and at the other to landside F, combined with a mold-board, J, and twisted bar K, all arranged and applied as and for the purpose described.

**135,850. HENRY SELICK,** Lewistown, Pa. Plows. Feb. 11, 1873.

The beam is attached to the mold-board by means of a lug formed thereon, whereby a central draft may be obtained.

Claim. The lug b on the inner side of the mold-board D, in combination with the beam

A, the bolts c d, and sheath C, the whole being arranged substantially as and for the purposes herein set forth.

**136,120. GILMAN D. WYMAN,** Oshkosh, Wis. Plows. Feb. 18, 1873.

The mold-board is made adjustable as regards the rear end of the beam by means of a swivel screw-bolt, one end thereof being secured to the mold-board and the other to the rear end of the plow-beam; and by the adjustment thus provided the plow can be caused to take more or less "land."

Claim. The combination of the beam A and mold-board handle H, the screw-rod K, and the screw-swivel D D, as described.

**136,361. NICHOLAS BURCH,** North Fairfield, Ohio. Plows. Mar. 4, 1873.

Claim. In the construction of plows, the wood beam A and iron standard B provided with the colter-holder F, and having a shoulder C, and flange D, in combination with screw-bolts, or their equivalents, for securing the said beam and standard together, substantially as and for the purpose set forth.

**137,716. WHITMAN PRICE,** Mount Olive, N. C. Plows. Apr. 8, 1873. Filed Sep. 25, 1872.

The landside is slotted and receives between its double walls the wooden standard and handles, all being securely bolted together. The frame thus constituted receives interchangeably various shares and cutters.

Claim. The plow provided with the wooden standard, and having its various parts constructed and arranged in combination therewith, as herein shown and described.

**140,004. THOMAS E. C. BRINLY,** Louisville, Ky. Plows. June 17, 1873. Filed Apr. 7, 1873.

Both the standard and mold-board are constructed with lugs and dovetailed recesses in such a manner that when the share is introduced, a single bolt will secure the whole firmly together.

Claim. The mold-board C b b' g g' d, in combination with the standard A c c' c'' e f<sup>3</sup>, and the share B f<sup>1</sup> f<sup>2</sup>, and bolt b'', all constructed and arranged substantially as specified.

**140,749. LEWIS B. WHITE,** Norfolk, Va., assignor to himself and Silas R. White, same place. Plows. July 8, 1873. Filed Apr. 9, 1873.

Claim. 1. The combination, with beam and handles connected by an adjustable piece D, of the slotted and adjustable wedge E, applied substantially as and for the purpose described.

2. A landside for turn plows, with two similar ends and two similar but reversed bottom flanges, constructed substantially as and for the purpose described.

**141,960. PATRICK H. STARKE,** Richmond, Va. Plows. Aug. 19, 1873. Filed July 11, 1873.

Claim. 1. The standard R, with beveled side A, bottom B, projection g, and swell f, as and for the purpose described.

2. The front piece K, with flange d', fork c, recess e', sides D d'', and flattened surface d''', as and for the purpose set forth.

3. The front piece K, flange d', fork c, recess e', sides D d'', and flattened surface d''', in combination with flange b and lugs d e on standard R, as and for the purpose set forth.

4. The mold-board C, with beveled flange E and flange e'', as and for the purpose set forth.

5. The mortise formed by combining the standard, front piece, and mold-board, substantially as shown and described.

6. In a plow, the combination of standard, front piece, and mold-board, each having the form substantially as shown and described.

7. The single wedge-shaped plow-point H, provided with a tenon a, and having a groove G, on each of its two sides, running parallel to the length of the tenon and terminating so as to leave a space between it and the shoulder, in order to fasten the point by means of the share, as set forth.

**142,136. EDWARD WIARD.** Louisville, Ky., assignor to Benjamin F. Avery, same place. Plows. Aug. 26, 1873. Filed July 12, 1873.

Claim. 1. The brace-rods c c, extending from the clevis-bolt b to a bolt j, and connected by braces k k to the beam-handle D', said brace-rods and connecting-rods being spread, substantially as described.

2. The clasps n n, constructed with lips and tubes, as described, and secured to the beam-handle D' by means of a bolt to which the rods k k are attached, substantially as described.

3. The flanged clamps d d, constructed with tubes d' d'', and confined at the bend of the beam A by means of a bolt j, to which the rear ends of the truss-rods c c are connected, substantially as described.

4. The brace g<sup>3</sup>, bent at g<sup>2</sup> and g<sup>4</sup>, and connected to the mold-board, the standard, and the beam-handle, substantially as described.

5. The spreader-brace g<sup>5</sup>, connected to the handle D D', and having bolted to it the mold-board B, substantially as described.

**142,800. CYRUS MARSH, 2d.** Natchez, Miss. Plows. Sep. 16, 1873. Filed Sep. 6, 1872.

A fin or rudder piece is riveted to the heel-end of the landside.

Claim. 1. In a plow of substantially the described construction, the independent heel-plate d, removably attached to the extreme rear end of the landside, and extending below the landside, as described, for the purpose set forth.

2. In a plow of substantially the described construction, the share E, having its cutting-edge e' turned forward and located beyond the line of the standard, in combination with a

heel-plate located at the rear end of a landside, as described, for the purpose set forth.

**143,263. SAMUEL W. SOULE,** New York, N. Y. Plows. Sep. 30, 1873. Filed Sep. 25, 1872.

Claim. A secondary mold-board and share pivoted to the frame to allow of its being raised and lowered, substantially as and for the purposes set forth.

**144,462. JOHN L. LAUGHLIN,** Peru, Ill. Plows. Nov. 11, 1873. Filed Aug. 11, 1873.

Claim. The angular tie-block D, constructed as described, to unite the mold-board to the beam and hold the landside handle, in combination with the mold-board A and iron beam C, as described.

**144,552. WELLS C. McCOOL,** Guthrie Center, Iowa, assignor of one-half his right to Daniel H. Brumbaugh. Plows. Nov. 11, 1873. Filed Aug. 15, 1873.

Claim. 1. The T-shaped yokes B B carrying the loops a a, when combined with the beams and standards of two plows, in the manner and for the purposes specified.

2. The equalizer D, having a branch b, carrying the plate c, and rod d formed and combined with the front ends of two plow-beams, in the manner and for the purpose specified.

**144,785. JAMES OLIVER,** South Bend, Ind. Plows. Nov. 18, 1873. Filed Sep. 20, 1873.

The standards, mold-board, and landside present a united curved front, on which rests the point with its long upward-projecting cutter.

Claim. The standard B, extended forward, as shown at a, the mold-board and landside extending forward even with the standard, forming a uniform curve, which forms a seat for the colter D, the part C being supported by the enlarged foot of the standard, as and for the purpose set forth.

**7,097. JAMES OLIVER,** South Bend, Ind. Plows. Patent No. 144,785, dated Nov. 18, 1873. Reissued May 2, 1876. Filed June 19, 1875.

Claim. 1. The combination, with a mold-board, the upper edge of which is constructed to extend well forward the shank X of the standard, of a colter having the whole length of its rear edge seated directly against the front edge of the mold-board, and extending to the top and in line with the upper edge of the mold-board, substantially as and for the purpose described.

2. The standard B, extended forward, as shown at a, the mold-board and landside extended forward even with the standard, together forming a uniformly-curved seat for the colter and plow-point, substantially as described.

3. The standard B, extended forward, as at a, provided with bearings for and conforming to the shape of the mold-board and landside.

and with an enlarged foot for supporting the plow-point C, substantially as described.

4. The slanting landside E, sloping inward from its top to bottom edge, in combination with the plow-point C and colter D, the said colter and plow-point seated directly against the forward edge of the mold-board through its entire length, substantially as and for the purpose described.

**144,811. NORMAN WESTCOTT**, Nelson, assignor of one-half his right to Dwight Cross, Morrisville, N. Y. Draft Attachments for Plows. Nov. 18, 1873. Filed May 27, 1873.

The rear end of the pole is supported by a single adjustable gage-wheel, and is connected with the plow-beam by a double-hinged joint, which permits a draft in any direction, the plow being kept erect.

Claim. The combination of plow-beam O, double-jointed coupling A U Y, pole C, cheek-pieces P, having a vertical series of holes  $\gamma$ , and single gage-wheel B, substantially as specified.

**144,960. AMUND K. DAHL**, Fox Lake, Wis. Plows. Nov. 25, 1873. Filed Apr. 19, 1873.

Claim. 1. The front part A, of a plow, with the part c of the mold-board, and the part d of the landside, all made in a single solid piece, substantially as described.

2. The guard D, having its rear end slotted to engage on the standard a, in combination with the spring F, the construction and arrangement being substantially as shown and described.

**145,088. RICHARD A. BROWN**, Oakland, Miss. Plows. Dec. 2, 1873. Filed July 26, 1873.

Claim. The combined brace and adjusting-rods F and G and their screw-nuts, in combination with the plow D and pivoted standard E, the rod G being pivoted to the rear extension of the landside D', and all arranged with relation to the beam A, as shown and described, for the purpose specified.

**145,120. JOHN B. NORRIS**, Richmond, Va. Plows. Dec. 2, 1873. Filed Sep. 10, 1873.

Claim. The combination of anti-friction balls with a roller, cylinder, or drum m m, and neck or stem J K l of a plow, in the manner as shown in Figs. 3 and 5, for the purpose substantially as set forth and described.

**146,088. JOHN J. MITCHELL**, Hopkinsville, Ky. Plows. Dec. 30, 1873. Filed July 12, 1873.

Claim. 1. The foot-piece A, having along the front curved edge the breast a and parallel flange d, and at the lower end the flange b, substantially as shown in Fig. 3, and for the purpose specified.

2. The combination of the cast-iron foot-piece A, having breast a and flanges b d, the

share B welded to the bar C, and the wooden mold-board D having its front part formed at, or nearly at, a right angle, all substantially as and for the purposes herein set forth.

**147,233. JOHN C. BIDWELL**, Pittsburgh, Pa. Plows. Feb. 10, 1874. Filed July 23, 1873.

Claim. 1. The standard e, composed of two wrought-iron bars joined in the center and parted at the ends, forming at the upper end a crutch sustaining the beam d, and at the lower end grasping the tail b with one part e<sup>1</sup>, and sustaining and bracing the mold-board with the other part e<sup>2</sup>.

2. The standard e, constructed as described, in combination with the solid point a and extension b, substantially as described.

**147,979. GEORGE W. RUCH**, Naperville, Ill. Plows. Feb. 24, 1874. Filed Aug. 12, 1873.

The steel share is detachable and separate from the point on which it is held by a spur, and bolted to a flange attached to the point. The latter forms the front portion of the face of the landside, and lines the remainder nearly to its rear.

Claim. The combination, in a plow, of the removable share B, having lug c, with point C, having shoulder c' for supporting the share, substantially as shown and described.

**148,786. EDWARD WALTER**, Salisbury, Mo. Plows. Mar. 17, 1874. Filed Sep. 6, 1873.

Claim. The combination, with beam A, of bi-branched standard B B', one branch, B', being adjustable through, and the other pivoted in, said beam, and rod G', pivoted to said standard, and adjustable through a pendant, e, as and for the purpose described.

**149,314. HARRISON JONES**, Ripley, Me. Plows. Apr. 7, 1874. Filed May 31, 1873.

Claim. 1. On a plow-beam, A, of common construction, the strap B with the diagonal clevis C, the T-shaped ends b with the adjusting-holes b<sup>2</sup> and bolts b<sup>3</sup>, the arms B' with adjusting holes b<sup>4</sup>, and the truck-pulley D, substantially as specified.

2. The plow-point cast in one piece, having the point l, the ground-knife l<sup>3</sup>, with horizontal cutting-edge, the ridge l<sup>1</sup> and the blade l<sup>2</sup>, joined to the mold-board by forming lateral angles or corners with the same, substantially as and for the purpose described.

3. In a plow, the arrangement of the clevis C in a diagonal position, for the purpose set forth.

**149,694. JOHN M. TINGLEY**, Clifton Mill, Mo. Plows. Apr. 14, 1874. Filed Feb. 14, 1874.

Claim. 1. The notched and slotted wedge G, in combination with the knob c' of the upright C, the bow F, the plow-beam A B, and

the projection or catch  $b'$ , substantially as herein described.

2. The notched flanged, and slotted vertical plate H, the hook-bolt I, and the bolt J, in combination with the rear upper part of the upright C, the plow-beam A B, and the projection or catch  $b'$ , substantially as herein shown and described.

**150,062. JOHN W. LOWE,** Ashland, Ohio. Plows. Apr. 21, 1874. Filed Jan. 31, 1874.

The plow-standard below the beam is branched, the front arm having a broad flange, and tapering to a sharp front to fit to and support mold-board, landside, and point. The rear arm has a curved slot with corrugated face, which, with a similar one on the inside of mold-board, permits the handles to be adjusted and secured at any height.

Claim. A plow-standard composed of the vertical portion  $a$ , forward inclined portion  $a'$ , having a laterally inclined wing  $a''$ , and the rear curved portion  $b$ , having slot and adjusting-notches, substantially as shown and described.

**150,207. MICHAEL D. WALSH,** Richmond, Va. Plows. Apr. 28, 1874. Filed Oct. 3, 1873.

The plow-standard has a knee at the top, in which the beam rests and is secured by a clamp passing around it.

Claim. The standard B, having the L-shaped knee  $b$   $b'$  formed upon its upper front portion, on and against which the beam A is clamped by the angular screw-rod d, the rear end of said beam resting upon the rear top portion of said standard, all substantially as and for the purposes herein set forth.

**151,229. JACOB KUENZEL,** Newark, Ohio. Plows. May 26, 1874. Filed Apr. 17, 1874.

Claim. 1. The share c, constructed with the flange  $c'$  and triangular projection  $c''$ , as and for the purpose set forth.

2. The single plow-point e, provided with the shank,  $e^1$  and mortises  $e^2$   $e^3$ , substantially as set forth.

3. The casting a, having the wings  $a^1$   $a^2$ , piece  $a^3$ , and mortises  $a^4$   $a^5$ , substantially as and for the purpose set forth.

4. The combination, with the casting a and point e, of the share c and key f, substantially as and for the purpose set forth.

**151,744. MICHAEL BARRY,** Valparaiso, Ind. Plows. June 9, 1874. Filed Mar. 14, 1874.

Claim. 1. The combination of the heel l with the standard E, head F, and handle D, said parts being connected and arranged substantially as herein shown and described.

2. The combination, with the mold-board H, having the beveled point, of the share G, with socket, and the head F, said parts being arranged and fitted together as shown and described.

**152,007. FRANK RENAK,** Racine, Wis. Plows. June 16, 1874. Filed Mar. 17, 1874.

The standard is pivoted in its center to the mold-board support, and is bolted to the landside through a slot, giving play to elevate or depress the beam. The standard is pivoted in the beam and plate, and cross-slots at the rear and the brace permit lateral adjustment.

Claim. The combination, with the share, beam, and handles, of the standard D d' d'' a, having the curved slot G, and the beam-plate having the corrugated slot e, and the branched slide F, all constructed, arranged, and operating substantially as specified.

**152,150. DANIEL L. H. MITCHELL,** Forest, Miss. Plows. June 16, 1874. Filed Sep. 15, 1873.

Claim. The combination of the curved metal beam A with pocket a, the wooden beam B, slotted standard C, with pockets d d', and handles E E, all constructed and arranged substantially as and for the purposes herein set forth.

**152,445. EDWARD WIARD,** Louisville, Ky., assignor to Benjamin F. Avery, same place. Plows. June 23, 1874. Filed Mar. 16, 1874.

Claim. The combination of the landside with the lug or lugs i, pin or pins j, and grooved and socketed lug  $D^2$  and  $k$  cast upon it, the mold-board and standard cast in one piece, and having a short perforated web, a, and a perforated wing E cast upon them, and the thrust-brace F, the whole constructed to allow the landside to be removed without disturbing the point, substantially as set forth.

**153,645. MOSES F. WHITE,** Douglassville, Tex., assignor of one fourth his right to A. J. Blankenship, same place. Plows. July 28, 1874. Filed Mar. 31, 1874.

Claim. 1. A plow-standard having flanges  $b^2$   $b^3$  and intermediate groove  $b^4$ , to receive mold-boards and point, in the manner described.

2. The combination, with an ordinary rear-grooved cutter, G, bolt J, and stud  $H'$  on plate H, of the plate  $H' K L$ , extending down to nearly or quite the middle of cutter, to afford a better position to bolt J and a both-side lateral support to the cutter.

**156,609. JAMES URIE,** Evansville, Ind. Plows. Nov. 3, 1874. Filed Sep. 26, 1874.

Claim. 1. The share B, constructed with a beveled point a, a recessed lug b, at the rear end of its landside, and a perforated lug, c, upon its upper rear edge, as and for the purpose specified.

2. The brace D, consisting of a stock, g, lips  $g^1$   $g^2$ , and a shelf,  $g^3$ , as and for the purpose described.

**157,057. STEPHEN D. WRIGHT,** Washington, Ind. Plows. Nov. 17, 1874. Filed Aug. 11, 1874.

Claim. The combination of the standard B and mold-board C, having the lugs U F, with the foot-piece D, having the point and share formed thereon, and the vertical flange J, to receive the landside and colter, substantially as described.

**157,204. ADNA B. KELLOGG,** Oakland, Oregon. Plows. Nov. 24, 1874. Filed Aug. 1, 1874.

Claim. The landside bar B, horizontal cutter C, and point A, formed of a single plate or blank of metal, as and for the purpose described.

**157,887. FRIEDERICH STRIDDE,** Menasha, Wis. Plows. Dec. 15, 1874. Filed Apr. 17, 1874.

Claim. 1. The combination with the angular plow, standard b and the beam c of a slotted plate f embracing said standard and horizontal adjusting screw stem h secured to said beam by arms i and passing across through a screw threaded eye g' in said plate substantially as described for the purpose of adjusting the plow to give more or less land thereto.

2. The combination with the plow standard the beam and the adjusting device of the oblique brace arm k provided with the slotted end o, and the clamp screw bolt and nut m for connecting the handles substantially as herein set forth whereby the beam handles and plow are braced to relieve the adjusting screw stem, of the lateral strain of the plow.

**158,186. HUGH D. SMITH,** Richmond, Va. Plows. Dec. 29, 1874. Filed May 9, 1874.

Claim. The combination of the stationary cleat B, the pivoted cleat D, and the bolt E, with the plow beam A and the notched standard C, substantially as herein shown and described.

**158,468. VOSCO M. CHAFEE,** Clay City, Ill. Stump Plows. Jan. 5, 1875. Filed Oct. 3, 1874.

Claim. In a plow the combination with the narrow flanged mold board C of the bifurcated standard F and the portion h curved and fitted to the back of the mold board the diagonal brace E, and brace L, substantially as and for the purpose set forth.

**158,561. JOHN YOCOM,** Dunville, Canada, assignor of one half his right to L. Massecar, same place. Plows. Jan. 5, 1875. Filed Oct. 26, 1874.

Claim. 1. The landside plow-plate R, having the extension beam piece H, S, provided with a groove for the beam B, and a raised socket, K, for the cutter, all constructed as shown and described.

2. The combination of the plate R D S, beam B, mold board C, point F, and landside handle G, as constructed and operating as shown and described.

**159,174. HORATIO GALE,** Albion, Mich. Plows. Jan. 26, 1875. Filed Dec. 11, 1874.

Claim. 1. The horizontally recessed and serrated colter block C, in combination with a serrated plow standard substantially as described.

2. The triangular washer E, combined with the standard shank and handles of a plow, substantially as and for the purpose set forth.

**7,253. HORATIO GALE,** Albion, Mich assignor to the Gale Manufacturing Company. Plows. Patent No. 159,174. Jan. 26, 1875. Reissued Aug. 8, 1876. Filed July 25, 1876.

Claim. 1. In center draft plows, and in combination with the standard and colter, the block C, interposed between the said standard and colter for the purposes specified.

2. The horizontally recessed and serrated colter block C, in combination with a serrated plow standard substantially as described.

3. The triangular washer E, combined with the standard shank and handles of a plow substantially as and for the purpose set forth.

**159,321. ALBT. HAMPE,** Staunton, Ill. Plows. Feb. 2, 1875. Filed July 25, 1874.

Claim. The plow beam A pivoted to swing horizontally on a bolt C, and vertically on a bolt d in combination with the slotted rear standard, F, screw bolt F' and clevis G to admit of the two adjustments as set forth.

**159,377. SILAS S. AUGHE,** Dayton, Ohio. Plows. Feb. 2, 1875. Filed Dec. 3, 1874.

The share and landside made in one piece the mold board bolted to a hollow standard, and the whole connected by inside bolts.

Claim. The combination of the standard A a share B b and mold board D by means of the bolts E and E passing horizontally through said standard and mold board and the bolts C and C passing vertically through said standard and share substantially as and for the purpose specified.

**159,905. CUMBERLON G. COX,** Richmond, Va. Plows. Feb. 16, 1875. Filed Dec. 7, 1874.

Claim. The landside plow-plate A, provided with the arm B and stem D, and having a series of holes x and y, made parallel with each other, in combination with the plow-beam G and bolts a b, arranged to allow the vertical adjustment of the plow-beam, as set forth.

**150,086. CHAS. R. DUGDALE,** Mason and Dixon, Pa., and **DANIEL BREED,** Washington, D C. Plows. Feb. 23, 1875. Filed Sep. 22, 1874.

Claim. 1. A plow having its landside, point, and mold-board made with corrugated or waved surfaces, and covered with enamel or porcelain, substantially as set forth.

2. A plow made with corrugated or waved

surfaces, for the purpose of applying enamel, substantially as set forth.

**160,094. ALBT. HAMPE,** Staunton, Ill.

Plows. Feb. 23, 1875. Filed Aug. 4, 1873.

Claim. 1. The plow-point F, having an angular share-edge, a horizontal base, and a dovetailed recess to receive the landside and plate D, as shown and described.

2. The sectional share and point, constructed as described, in combination with the sectional mold-board A and landside, as and for the purpose specified.

**160,836. JOHN O. MINOR,** Bedford,

Iowa, assignor of nine-tenths his right to P. H. Oxley, John P. Bell, Birson Fordyce, A. J. Littleir, Simon Wright, J. T. King, P. D. Curran, W. A. Webb, and D. Griffith. Plows. Mar. 16, 1875. Filed Apr. 28, 1874.

Claim. 1. The perforated plate d on the front end of the beam B, in combination with the block a on the beam A, and the adjustable coupling devices e h k on the central portions of the beams A and B, substantially as shown and described, and for the purposes specified.

2. The loop or bearing c on the beam A, and having the groove c', in combination with the loop h on the beam B, having the slide h' carrying the set-screw k, substantially as described, and for the purposes specified.

**160,989. WILLIAM ADAMS,** Long Island, Kans. Plows. Mar. 23, 1875. Filed Feb. 1, 1875.

A horizontal knife extending at right angles from the plow point, to cut under the furrow.

Claim. As a new article of manufacture, the plowshare A, with its attachment B, as described, and for the purposes specified.

**162,240. JNO. LANE,** St. Louis, Mo., assignor to Hapgood & Co., same place.

Plows. Apr. 20, 1875. Filed Jan. 14, 1875.

Claim. 1. The land-bar B, with support C and shoulders Z Z', in combination with the standard D, curved to the back of the mold-board and ending against the shoulder Z', and removable therefrom, and secured to the land-bar with a bolt at d', arranged as and for the purpose shown.

2. The frog E, bent to the curve of the mold-board, and twisted to the side of the standard, in combination with the wide support W, covering the line of junction, as shown, substantially as and for the purpose set forth.

**162,549. C. A. HEGE,** Salem, N. C.

Plows. Apr. 27, 1875. Filed Mar. 17, 1875.

Claim. 1. The plate A, having the lugs F F on its back, and concentric horizontal grooves Q between curved vertical flange a a on its face side, as and for the purpose set forth.

2. The standard B, of the shape described and shown, having the horizontally-concentric grooves K and the curved vertical slots D, as set forth.

3. The combination of the plate A, standard

B, cuff b, beam H, and wedges c c, all constructed and arranged, as and for the purpose set forth.

**164,025. HOLCOM OLSON,** Mount Pleasant, Iowa. Plows. June 1, 1875. Filed Apr. 1, 1875.

Claim. 1. A mold board and point or share made in one piece and provided with a flange d, as shown, to be clamped between the plow-standard B and landside-bar E, all combined substantially as and for the purposes herein set forth.

2. The frame of a plow, consisting of the standard B, bar G, arm H, supporting-plate I, and landside-bar E, all substantially as and for the purpose herein set forth.

3. The combination of the mold-board J, frame B G H, and set-screw f, for regulating the curve of the mold-board, substantially as herein set forth.

**164,134. BYRON C. BRADLEY,** Chicago, Ill. Plows. June 8, 1875. Filed Mar. 19, 1875.

Claim. The standard A and the parts B, formed or rigidly secured together, and constructed as described, forming a foundation for, and in combination with, the mold-board C and landside D, and points E, all as and for the purpose herein described.

**164,201. JOHN B. NORRIS, MARCUS M. BOWERS, and WM. C. DIMMOCK,** Richmond, Va. Plows. June 8, 1875. Filed Aug. 4, 1874.

Claim. 1. The neck or stem of a plow, with movable and fixed annular collars or rings forming ledges around the neck or stem, each of said ledges being provided with a suitable number of anti-friction balls combined with a revolving cylinder or collar suspended over and resting upon the top series or group of balls, as shown in Fig. 8, substantially as and for the purpose described.

2. The revolving cylinder or collar of a plow formed with one or more nicks or notches L' L', as shown in Figs. 5, 11, for the purpose substantially as set forth and described.

3. A plow-brace or pedestal bracket formed with an inclined or an oval breast, a<sup>2</sup>, and an elliptical or elongated arched arm, b<sup>1</sup> b<sup>2</sup>, formed with a mortise through the breast part thereof, and provided with a detachable breast-piece a<sup>2</sup>, substantially as shown, and described, for the purposes set forth.

4. The mold-board formed with the spur-like projection or scraper m', in combination with the revolving cylinder k', Figs. 1, 2, 12, substantially as shown and described.

5. A landside strip and share of a plow, fluted or grooved on the under side, as shown at S Figs. 1, 4, 8, 9, substantially as set forth and described.

6. The fender-pin n<sup>1</sup>, the fender-plate n<sup>2</sup>, and the lateral shield-plates n<sup>3</sup>, combined with the plow-beam, and the revolving cylinder or col-

lar  $\ell$ , Figs. 1, 8, as shown and for the purposes substantially as set forth and described.

**164,471. CHRISTIAN MYERS**, Marysville, Cal., assignor of one-half his rights to Geo. B. Hornish, same place. Plows. June 15, 1875. Filed Apr. 21, 1875.

Claim. The plow share G, having the landside wing L and mold-board wing F, beveled upon their upper edges, and the latter wing provided with tongue H, in combination with the mold-board A, beveled upon its lower edge, the landside B, cut away to receive the wing L, and the frog D, having the lip or projection I upon its lower mold-board edge, the several parts being constructed and operating substantially as and for the purpose hereinbefore described.

**164,951. LEWIS B. WHITE**, Norfolk, Va., assignor to himself and S. R. White, same place. Plows. June 29, 1875. Filed May 8, 1875.

Claim. 1. The standard B, curved brace C, and brace D, as shown in combination with the curved weeder-stock G, the adjoining surface being provided with teeth or corrugations, as and for the purpose described.

2. The standard B, curved brace C, brace D, and weeder-stock G, the adjoining surfaces being provided with teeth or corrugations, in combination with the wings H H, having curved shoulders e, bolt-holes f, teeth i i, reversible blades I, the inner ends having segmental racks h, all as and for the purpose specified.

3. The plow share or points J, provided with a projection running back along the base, and secured thereto, and having the recessed ears, in combination with the mold-boards K, having dovetail slides m to receive the bolts n, whereby the share and mold-boards are secured firmly in place without any bolt or bolts passing through the surface of the plow, all constructed as and for the purpose specified.

**164,952. LEWIS B. WHITE**, Norfolk, Va., assignor to himself and S. R. White, same place. Plows. June 29, 1875. Filed May 8, 1875.

Claim 1. The tapering concave flange d, formed on the lower edge of the frame B, in combination with the reversible double-pointed landside C, provided with tapering flanges h, made thicker on one end than on the other, substantially as and for the purpose specified.

2. The frame B, provided with flanges a' a' and edge i', in combination with the slotted and corrugated wedge B and handles P, all as and for the purpose herein specified.

3. The casting S, having recessed and slotted projection f', flanges or ribs t' t', slot s'', and slot for bolts t, in combination with handles P, beam A, and block h, all as and for the purpose set forth.

**165,179. GERHARD RINGEN**, Smith City, Mo. Plows. July 6, 1875. Filed June 23, 1874.

Claim. In a plow, a continuous brace, consisting of the rounded portions H, K, and N, and of the flattened points f, s, o, and n, the part N being the prolongation of the left-hand handle l, and the whole adapted to the brace, standard, beam, handle, and landside by a single brace, substantially as herein described.

**165,258. MILTON ROSS**, San Jose, Cal. Vineyard-Plows. July 6, 1875. Filed Feb. 18, 1875.

Claim. A plow, having the rear end of its beam D adjustable between the handles, in combination with the crank G for shifting its middle and forward end, substantially as and for the purpose above described.

**165,876. JACOB R. SAMPLE**, Liberty, Miss. Plows. July 20, 1875. Filed May 14, 1875.

Claim. The point C, having symmetrical wedge-shaped extremities with lateral grooves, in combination with the landside A, having depression F, the reversible triangular share D, the grooved wedge E, and the mold-board, substantially as and for the purpose specified.

**165,903. GEORGE WIARD and THOS. WIARD**, East Avon, N. Y., assignors to Geo. Wiard and Chas. W. Hough, same place. Plows. July 20, 1875. Filed June 12, 1875.

Claim. 1. The landside B, constructed with the offset o and projecting semicircular hook b, where it joins the rear edge of the beam, and the projecting elliptical lug a near its upper forward edge, in combination with the beam A, constructed with the locking-lug b' and recess a', and fastening-bolt c, as described.

2. A mold-board handle fastened by two subjacent supports f f<sup>1</sup>, one side support f<sup>1</sup>, and two bolts placed at right angles to each other, as and for the purpose specified.

3. The one-piece handle-brace E, flattened at the bend, and combined with a socket having undercut lip h', as and for the purpose specified.

**7,075. GEORGE WIARD and THOMAS WIARD**, East Avon, N. Y., assignors to George Wiard and Chas. W. Hough, same place. Plows. Patent No. 165,903, July 20, 1875. Reissued Apr. 25, 1876. Filed Apr. 6, 1875.

Claim. 1. The combination, with the beam A, provided with a lug b', and recess a', of the landside B, constructed with offset b<sup>2</sup>, semicircular hook b, and elliptical lug a, and fastening-bolt c, substantially as and for the purpose hereinbefore set forth.

2. A plow-handle, secured to two supports f f<sup>1</sup>, by two bolts g g', arranged at angles to each other, for preventing the splitting of the handle, substantially as and for the purpose hereinbefore set forth.

3. A mold-board cast with the handle-supporting arm f<sup>1</sup> and a lateral brace f<sup>2</sup>, connecting the upper end of the arm f<sup>1</sup> with the rear

end of the mold-board, substantially as and for the purpose hereinbefore set forth.

4. The handle-brace E, constructed in one angular piece, flattened at the bend, in combination with a socket h, arranged on the beam A, and having undercut lip h', substantially as and for the purpose hereinbefore set forth.

**166,127. JOHN MIDDLEITCH,** New York, N. Y. Plows. July 27, 1875. Filed May 17, 1875.

Claim. 1. In a plow, the beam A pivoted at its rear end to a frame C, and made rigid with the handle B in combination with the adjusting-lever D, set-nut, and said frame, substantially as shown and described.

2. The cross-frame E, composed of two vertical and two or more horizontal bars, and having a socket to receive the handle B', substantially as specified.

3. In a plow, the combination of the frame E, constructed as described, the removable handle B', and mold-board, substantially as specified.

**166,200. CHAS. H. GAYLORD and EDWARD M. AVERS,** Osceola, Ark. Stalk-Cutters. Aug. 3, 1875. Filed May 8, 1875.

Claim. The stalk cutter composed of cutting blade A, placed and secured in a nearly flat or slightly-inclined position, constructed or formed with curved sharp cutting-edge A' and projecting points a a', upon which it rests, landside B, formed with a rear projecting sharp point b, standard C, and ordinary plow-beam and handles D D', as and for the purposes described.

**166,281. HENRY KROG, Sr.,** Washington, Mo. Plows. Aug. 3, 1875. Filed May 22, 1875.

Claim. In a plow, the combination of share A, landside-bar B, and seat C, the connecting ends of these parts being welded together, while the outer ends of plates A C are riveted or bolted together, all substantially as and for the purpose specified.

**166,586. T. MILES BROUS,** Philadelphia, Pa. Plows. Aug. 10, 1875. Filed Nov. 13, 1872.

Claim. The mold-board D, formed with a solid back E, extending from top to bottom of the board, in combination with the fastening-rod H, passed through the back E, the plate J, fitted to said back, and the standard B, bolted to the same solid back E, all as herein set forth.

**166,734. W. S. WADSWORTH,** Miami County, Kans. Plows. Aug. 17, 1875. Filed May 24, 1875.

Claim. In a gang-plow composed of two ordinary plows, the brace B, attached to the handle of one plow and to the beam of the other, in combination with the angular brace E, having the adjustable clevis h, substantially as shown and described.

**167,686. MARCUS ORMOND,** West Alexander, Pa. Plows. Sep. 14, 1875. Filed Sep. 9, 1874.

Claim. 1. The clevis D, having slots d on its upper and lower arms, and the sliding bar E held against the notches of the clevis by the springs F, substantially as shown and described.

2. The point share B and colter B' made in one piece, the colter standing nearly vertical and ending in a short, small point, the rear of the colter being deeply grooved to fit upon a lug or projection, b, upon the front edge of of the plow frame, all constructed substantially as shown and described.

**167,756. IRVIN FREEMAN,** Corpus Christi, Tex. Plows. Sep. 14, 1875. Filed Sep. 3, 1875.

Claim. 1. The combination of the mold-board, provided with the slotted projecting back D', and the share C, having the recessed projection e, with the oblique hook-rod E and skeleton B, having lip b', as shown and described.

2. The combination, with a share recessed on the under side, and the skeleton having lip b', of the hook-rod E, passing through the rearward-projecting portion d' of said skeleton, and securing it to the beam, in the manner specified.

**169,716. WM. H. McCUNE,** Pittsburgh, Pa., assignor to the Pittsburgh Steel-Casting Company, same place. Plows. Nov. 9, 1875. Filed Sep. 28, 1875.

Claim. A plow share or plate, A, having perforated lug a', with sloping edge s', in combination with frog or standard B, having slot a, with sloping edge s, substantially as and for the purpose set forth.

**121,022. HENRY H. HUBLEY,** Central Manor, Pa. Plows. Dec. 14, 1875. Filed Oct. 30, 1875.

Two metallic boxes with connected traveling screws for the vertical and lateral adjustment of the rear end of the plow beam.

Claim. In combination with the plow handles and beam, the case A and its traveling screw B, for vertical adjustment, and the case D and traveling screw B', for the lateral adjustment of the plow beam, the traversing nuts of each screw being connected by a rigid stem, the whole arranged and operated as and for the purpose specified.

**173,869. HENRY D. STRAIGHT,** Denmark, Iowa. Plows. Feb. 22, 1876. Filed Nov. 27, 1875.

Claim. 1. The landside plate C, made high and short, as shown, and with a forwardly projecting hook-shaped cutter E, as and for the purpose described.

2. The combination, with the described landside plate C, of the mold-board B, curved forward at its front edge to form the colter of plow, as set forth.

3. The brace D, secured adjustably to the plow beam A, and having its rear end curved downward and hinged to the mold-board B, substantially as herein shown and described.

**174,115. FRANK CHEVALIER,** Fayette Co., Ky. Plows. Feb. 29, 1876. Filed Jan. 31, 1876.

Claim. The combination of the two plows secured to the same beam, one in the rear of the other, with the two handles, one of which is attached to each plow, and secured together by the round i and brace l, substantially as set forth.

**174,338. J. W. WRIGHT,** Wyandotte, Mich. Plows. Feb. 29, 1876. Filed Nov. 23, 1875.

Claim. 1. The combination, with the beam D, colter F, and stirrups g g, of the landside A, cast with an enlargement at the head of the same, the slotted socket d in such enlargement, and the T-headed bolt E, whereby the landside and colter are adjusted laterally and kept in line with each other, the several parts being constructed and arranged substantially as described and shown.

2. In a plow, the combination, with the beam D, of a colter, F, and the four stirrups g, all constructed and arranged substantially as described and shown.

3. The ribbed or flanged plates H H, blocks n, and latch I, for securing and adjusting the clevis G to the end of the beam, substantially as set forth.

**174,367. ANDREW W. JOHNSON,** Chicago, Ill. Plows. Mar. 7, 1876. Filed Dec. 2, 1875.

Claim. 1. The combination of the landside D, provided with a shoulder extending entirely across it, and the beam A, resting upon said shoulder, substantially as described.

2. The landside D, constructed with a shoulder upon its upper edge for the purpose of receiving the beam, and with lugs upon its lower edge for the purpose of fastening the shoe to the landside, substantially as described.

3. The combination of the band P, the double wedge R, the set-screw Q, and the colter O, substantially as and for the purposes set forth.

**175,311. JAS. T. WATKINS,** Santa Clara, Cal. Plows. Mar. 28, 1876. Filed Jan. 21, 1876.

Claim. 1. The standard C, having the lugs d e and downwardly projecting plate g the forward end of which plate is formed into a toe i and its rear end beveled as described in combination with the landside B, and share A, formed in one piece and provided with the recess o lug p and grooved lug q with its beveled or inclined rear face the whole clamped rigidly together, by the locking lever s with its rectangular bar t all combined and arranged to operate substantially as and for the purpose set forth.

2. The landside B and share A, made in a single piece and having the three locking points g o p triangular with each other in combination with the standard c d and locking lever s, as shown and described.

**175,889. GEORGE WIARD,** and THOS. WIARD, East Avon, N. Y., assignors to Geo. Wiard, and Chas. W. Hough, same place. Plows. Apr. 11, 1876. Filed Jan. 25, 1876.

Claim. 1. The combination with the standard and landside B C, mold board D, and bindles F F of the pivot bearing G, slotted transverse brace H and adjustable bearing plate I having slotted lugs K, for making the handles laterally and vertically adjustable substantially as and for the purpose hereinbefore set forth.

2. The combination with the standard B, provided with ribs b b of the mold board D provided with lug d and overlapping ledge m, for securing the mold board to the standard substantially as and for the purpose hereinbefore set forth.

3. The combination with the standard B, and brace P of the toe plate O, provided with slot q for receiving the bolt e and for facilitating the casting of the parts in one piece substantially as and for the purpose hereinbefore set forth.

**176,465. ABRAHAM G. W. FOSTER,** Newnan, Ga. Plows. Apr. 25, 1876. Filed Dec. 2, 1875.

Claim. 1. The adjustable standard e having its upper part divided into the branches g curved to straddle the beam one in the rear of the other and provided with the seat 6 to receive various kinds of shovels or a landside and moldboard as shown and described.

2. The combination of the standard e having the seat 6, landside h having seat 5 and arm l and the mold board the parts being arranged and constructed as shown.

**176,717. SAMUEL B. WARD,** Locust Mount, Va. Plows. Apr. 25, 1876. Filed Oct. 12, 1875.

Claim. 1. The standard C, flattened at each end and attached to the landside and beam in or near the same vertical plane, having a middle portion round in its cross section laterally and rearwardly inclined and bowed over the landside as and for the purposes set forth.

2. The removable face plate or wearing section F, provided with lug f in combination with recessed mold board A having an aperture or socket e as and for the purpose set forth.

3. The deflecting fingers J J' clamps K K' and bolt L in combination with the beam B, as and for the purpose set forth.

4. The adjustable eccentric steel hoe M, adapted to be set at a greater or less elevation and attached rigidly to the stock S by bar N, said bar fitting over the landside D, as and for the purpose set forth.

5. The adjustable extension plate O, provided with intersecting slots o for various ad-

justments in combination with the mold-board A, as and for the purpose set forth.

**177,000. JOHN P. PRUTZMAN, JOS. E. PRUTZMAN, and JAS. P. McINTYRE,** Three Rivers, Mich. Plows. May 2, 1876. Filed Mar. 8, 1876.

Claim. 1. In a slide-draft plow, the combination, with the standard A, of the form substantially as shown, having the dovetail recess a', of the shin D', inclosing the front edge of the said standard, and cut inwardly to correspond with the face of the same, and having the lug a, all substantially as described and shown.

2. The combination, with the standard of a plow, of the arm E, having the lugs b b', which grasp the neck of the standard, and the set-screw c, setting against the said standard, constructed and arranged substantially as described and shown.

3. In a plow, the combination of the standard A, of the form substantially as described, of the point B, the landside C, the mold-board D, and the shin D', when the several parts are constructed, arranged, and connected substantially as shown and specified.

**177,254. ISAAC R. KERN,** Bloomington, Ill., assignor of one-half his right to Christn. C. Martens, same place. Plows. May 9, 1876. Filed Feb. 10, 1876.

Claim. 1. In combination with the mold-board and landside of a plow, the curved beam A B, with seats a a d, constructed of one piece of metal, and curved laterally above and over the mold-board, substantially as shown and described.

2. The combination, with the beam A and handles F F, of the sockets H H, clamp G, and bolt y, passing through the sockets, beam, and handles, substantially as and for the purposes herein set forth.

**177,469. ROBERT CASSIDY, THOS. B. LAMB, and CHAUNCEY L. VAUGHAN,** Beloit, Kans. Plows. May 16, 1876. Filed Feb. 28, 1876.

A share nearly level, its edge extending outward at a right angle, with a bent standard to equalize the resistance in draft.

Claim. The plowshare D, of the form shown and having the cutting-edge at right angles with landside, in combination with the slotted standard B, curved inward to bring the plow beam nearly over the center of share, as and for the purpose specified.

**178,024. GIDEON J. OVERSHINER,** San Jose, Cal. Plows. May 30, 1876. Filed Apr. 3, 1876.

Claim. The mold-board a and share b of a plow, formed as shown, and having the lugs d and e, and corresponding recesses, in combination with the hook-rod L, entering a hole in the share, and provided with a nut o, at its upper end, by which, when turned down upon the lug n, the parts are held together without

other fastening, substantially as and for the purpose herein described.

**178,877. S. W. POPE,** Louisville, Ky., assignor of one-fourth his right to C. H. Pope, same place. Plows. June 20, 1876. Filed Mar. 13, 1876.

Claim. 1. The standard a, having its upper portion tubular, its middle forming the upper face surface of the landside, and its lower portion flanged to form seats for the landside, mold-board, and share of a turn-plow, substantially as described.

2. The combination of the straight handles M M' and the supporting-piece d, extending from the landside to the mold-board, and to which both handles are attached at their lower ends at a point intermediate between the landside and mold-board, and remote from the landside, substantially as and for the purpose set forth.

3. The combination of the handles M M' and brace d, provided with a lug or projection N, and the bolt O, as and for the purposes set forth.

4. The combination of the beam E, brace b, and straight handles M M', connected by the brace b only, all constructed without mortise or tenon, and connected together and secured to the plow by screw-bolts only, substantially as and for the purpose set forth.

**178,970. JOSEPH SHICKEL,** Bridgewater, Va. Plows. June 20, 1876. Filed Mar. 25, 1876.

Claim. The combination, with a clamping-bolt, of the plow-point, having countersinks on both sides, and the mold-board having corresponding projections to fit said countersinks, substantially as and for the purpose specified.

**180,511. GEO. WIARD and CHARLES W. HOUGH,** East Avon, N. Y. Plows. Aug. 1, 1876. Filed Mar. 2, 1876.

Claim. 1. The combination, with a wooden plow-beam A, and clevis E, provided with teeth g g, and bolt-holes e' of the metallic plate F, provided with notches f f, flange h, and pin h<sup>1</sup>, substantially as and for the purpose hereinbefore set forth.

2. The combination, with the wheel D and standard I, of the arbor J, provided with shank j<sup>1</sup>, arranged at an angle to the arbor, substantially as and for the purpose hereinbefore set forth.

3. The combination, with the wheel-standard I, provided with double tapering socket j<sup>1</sup>, of the arbor J, provided with angular collar j<sup>2</sup>, and flattened shank j, substantially as and for the purpose hereinbefore set forth.

4. The combination, with the jointer C, of a standard composed of two parts L L', constructed with inclined or tapering contiguous ends for rendering the jointer laterally adjustable, substantially as and for the purpose hereinbefore set forth.

**180,742. WILLIAM N. BELL,** Montpelier, Ohio. Plows. Aug. 8, 1876. Filed June 10, 1876.

Claim. The combination of the standard *a*, having curved top and a grove *b*, top piece *h*, slots *i*, bolts *g o*, and beam *n*, substantially as described.

**181,471. JOHN PENTREATH,** Newark, N. J., assignor to the New York Plow Company, New York, N. Y. Adjustable Plow-Beams. Aug. 22, 1876. Filed May 18, 1876.

Claim. The combination, in a plow, of the beam *D*, pivoted by a bolt *a*, to the standard *A*, the cross-bar *C* connecting the two handles and serrated upon its upper face, and the J-shaped screw-bolt *d* and nut *h*, whereby the plow-beam may be moved and adjusted at any desired inclination, substantially as herein set forth.

**181,493. WM. STEPHENSON,** Acton, Ont., Canada, assignor to the Acton Plow Company, same place. Plows. Aug. 22, 1876. Filed June 3, 1876.

Claim. 1. The beam *A*, having clevis-head *P*, standard *C*, projections *D E*, and bifurcated handles *B B*, integrally formed therefrom, as set forth.

2. The beam *A*, formed triangular in cross-section rearward of the standard *C*, and forward of the same of rectangular form, for combining lightness with strength.

3. The combination of landside *H*, pivoted to the standard *C* near its forward end, and provided with loop or keeper *I*, the beam *A*, provided with downwardly-projecting arm *D* and the vertical set-screw *J*, said screw working in a socket in the lateral portion of the arm, and pivoted to the keeper, and the keeper and landside adapted to slide on the arm, as and for the purposes set forth.

4. The beam *A*, having curved standard *C*, whose lower end is provided with a triangular socket, formed wholly therein, in combination with the share *G*, having tapering triangular projection for attachment to the standard, as set forth.

**181,842. JUDSON S. HARTZELL,** Addison, Pa. Plows. Sep. 5, 1876. Filed May 9, 1876.

Claim. 1. The flange *b'* formed upon the standard and mold-board *A B*, and recessed upon its inner and outer sides to receive the parts of the landside, substantially as herein shown and described.

2. The landside, made in two parts, *D E*, constructed and combined with each other and with the flange *b'*, substantially as herein shown and described.

**181,873. MELVIN P. SPARKS,** Spring Lake, Mich. Plows. Sep. 5, 1876. Filed Mar. 25, 1876.

The beam is composed of two wrought-iron bars, curved downward at the rear end to re-

ceive the shaft of a bearing wheel that travels in the bottom of the furrow. The forward end of the beam is fortified by a wooden beam bolted between the iron beams. A bearing-wheel supports the forward end of the beam. The depth of the furrow is regulated by the adjustment of the beam upon the standard of the plow.

Claim. The combination of the plow-beam *A*, having the curved side bars *B B*, with the landside plate *E*, having the series of holes *e'*, and with the wheel *D* and wheel-shaft *C*, all constructed and arranged substantially as shown and described, as and for the purpose specified.

**182,489. JOSEPH SMOOTH,** Sr., Baltimore, Md. Plows. Sep. 19, 1876. Filed Aug. 14, 1876.

Claim. 1. The plow standard *C*, provided with rib or flange *e*, in combination with the grooved beam *A*, grooved castings *d* on top of the beam, and clip *G*, substantially as and for the purposes herein set forth.

2. The combination of the plow-beam *A*, slotted plate *L*, having corrugations *m*, slotted plate *J*, having ribs *i* and corrugations *h*, the bolt *n*, washer *p*, with ribs *x* and nuts *s*, all as and for the purposes herein set forth.

**183,393. GEORGE T. HEDRICK,** Mill Springs, Ky. Plows. Oct. 17, 1876. Filed July 10, 1876.

Claim. 1. The plow standard *C*, having the point *a* and lug *d*, and provided with the seat *E*, having the notched vertical flange *e*, as shown and described.

2. The combination of the standard *C* with double landside, mold-board, and share, as shown and described.

3. The curved or bent arm *K*, carrying the bearing-wheel and pivoted to the landside plates, as shown and described, for the purpose specified.

4. The bent arm pivoted to the heel of the landside, the bearing-wheel, pivoted to the free end of said arm, the hook *m*, and the handles *B*, extended below the beam, as shown and described, whereby the wheel may be secured in the elevated position, as specified.

**183,612. EBENEZER G. WHITING,** Northfield, Minn. Plows. Oct. 24, 1876. Filed July 1, 1876.

Claim. 1. The plow frame *c f h* made of one piece of metal, cut in the shape described and shown, and bent by suitable means into a support or seat for the mold-board, share, landside, and beam of the plow, substantially as shown and described, and for the purposes set forth.

2. The auxiliary piece *B*, in combination with the frame *c f h*, and welded or otherwise secured thereto, as hereinbefore described.

3. The combination and arrangement of the curved beam *A*, frame *c f h*, and handles *G G'*, as hereinbefore set forth.

4. The curved shield and brace *E*, in com-

bination with the mold-board *e* and landside frame *f*, as and for the purpose hereinbefore explained.

**183,654. MALACHI D. DOZIER,** Camden C. H., N. C. Plows. Oct. 24, 1876.

Filed June 26, 1876.

The standard is bolted to the landside, and is held to the landside by a clip upon its inner face. A hook is inserted into its lower end, the rod passing through the beam, and is secured by a nut on the top of the beam. The heel of the landside is provided with a supplemental part, which can be renewed at pleasure.

Claim. The standard *A*, provided with a jaw *a* and hole for the insertion of the hook bolt *b*, the landside *C*, having the staple *E* and grooved rib *c*, the vertical brace *D*, and hook-bolt *A*, combined substantially as described.

**184,411. GILPIN MOORE,** Moline, Ill., assignor to Deere & Co., same place. Plows. Nov. 14, 1876. Filed Sep. 16, 1876.

Claim. 1. The brace *J* crossing the standard *E*, to which it is attached, combined with the beam *A* and landside *D*, substantially as described, and for the purpose specified.

2. The brace *J*, constructed and arranged substantially as described, in combination with the handle *I* and standard *E*, for the purpose specified.

3. The brace *J* and standard *E*, constructed and connected substantially as described, and combined with the landside *D*, substantially as described, and for the purpose specified.

**185,235. PETER HOLLOWAY,** Monclova, Ohio. Plows. Dec. 12, 1876. Filed Apr. 28, 1876.

Claim. 1. The L-shaped landside *K*, in combination with the reversible mold-board and point *J*, resting its whole length upon the front edge of the upright part of the landside, substantially in the manner and for the purposes set forth.

2. In combination with the above-described landside *K* and point *J*, the adjustable shank *C* and slotted beam *A*, substantially as and for the purposes set forth.

**185,383. CEALY BILLUPS,** Norfolk, Va. Plows. Dec. 19, 1876. Filed Nov. 1, 1876.

Claim. 1. The standard *B*, having seats *B<sup>1</sup>* and *B<sup>2</sup>*, in combination with the beam *A* and the eccentric lever *G* *G<sup>1</sup>*, the lever being arranged between the standard and beam, and serving to adjust the beam in any desired position, substantially as set forth.

2. A plow-standard curving rearward in front, having two seats, on which to rest the beam independently of the handle, the front seat being the pivot, and the rear seat being cut away and provided with ratchet-teeth and slot, the same to work in combination with beam, bolt, and eccentric, substantially as and for the purpose described.

3. The combination of the plow-standard

*B*, having recessed seat *B<sup>2</sup>* and notched opening *b*, with eccentric lever *G*, toothed arm *G<sup>1</sup>*, whereby the beam is adjusted laterally, and held in any desired position, substantially as set forth.

**185,437. CHAS. W. FLIPPEN,** Danville, Va. Plows. Dec. 19, 1876. Filed Oct. 19, 1876.

Claim. 1. The combination, substantially as hereinbefore set forth, of the handles, the beam secured thereto, and having no movement independently thereof, the plow-standard, the parts secured thereto, constituting the plow proper, and the collar upon the standard, adjustable back and forth upon the beam, to rock the plow without disturbing the beam, for the purpose set forth.

2. The combination, substantially as hereinbefore set forth, of the beam, the handles jointed to the landside of the plow, the standard, its collar, and the set-screw, whereby the depth of plowing may be regulated by rocking the plow upon the handles and sliding the collar upon the beam.

3. The combination of the standard, constructed as described, with a seat for the mold-board, and provided with the notch *P* in the projection *K*, the mold-board having the lip *O'* and the flange *O*, and the single bolt passing through the mold-board and standard, these members being constructed and operating substantially as set forth, for the purpose specified.

4. The hereinbefore-described mold-board, having an outwardly-projecting arm *R*, for breaking or pulverizing the soil as the furrow-slice is being turned, as set forth.

5. The combination of the beam, the rocking turning-plow, and the rocking subsoil-plow, said plows being adjustable on the beam as to inclination by means of independent connections, substantially as and for the purposes specified.

6. The combination of the handles, the beam, the subsoil-plow, the turning-plow, their standards provided with collars independently adjustable upon the beam, and the brace upon which the front plow rocks, passing from its heel to the beam, these members being constructed and operating substantially as hereinbefore set forth, whereby the plows may readily be detached from the beam, and either or both of them may be rocked vertically, for the purpose specified.

**185,450. C. MYERS,** Marysville, Cal. Plows. Dec. 19, 1876. Filed Sep. 30, 1876.

Claim. In combination, the mold-board *a*, bearing the apron *i* and landside base, having pin-hole *m*, the share *j*, bearing the return-flange *k*, having the stud-pin *l*, and the nut and bolt *n o*.

**185,833. JAS. OLIVER,** South Bend, Ind. Plows. Jan. 2, 1877. Filed Nov. 29, 1876.

Claim. 1. The combination, with the de-

tachable mold-board, standard, and point of a plow, of a detachable colter formed with a thin rear flange, which latter is secured between the standard and mold board, thereby preserving an unbroken working face on the landside of the plow, substantially as and for the purpose described.

2. The combination, with the mold-board, standard, and point of a plow, all formed in independent parts, of a detachable colter constructed with a thin flange extending rearward between the mold-board and standard, and provided with one or more open slots for adjustable bolt engagement therewith, substantially as and for the purpose described.

3. The combination, with the mold-board, standard, and point of a plow, all formed in independent parts, of the detachable colter, the latter provided with the flange secured between the standard and mold-board, and also constructed with the lower lug projection seating into the mortise formed in the point, substantially as and for the purpose described.

**186,088. S. HUBER,** Danville, Pa. Plows.

Jan. 9, 1877. Filed Dec. 4, 1876.

Claim. 1. The plow-share D, having formed upon it the finger i for engaging with the aperture h, in the mold-board, and a dovetail recess, e, and projections g g', for engaging with the beam and landside, substantially as shown and described.

2. The combination of a share, D, made substantially as described, the mold-board B, having the aperture i, the landside C, provided with the dovetail projection d, and lug-pin b, and the beam A, having the recess f and slot c, substantially as shown and described.

**186,130. J. W. HENDLEY,** Cedar Hill, N. C., assignor to D. N. Bennett and S. T. Wright, same place. Plows. Jan. 9, 1877. Filed Nov. 25, 1876.

Claim. The improved plow herein described, consisting of the landside A and mold-board B, wedged together, the curved beam D attached to the landside only, and the brace E bolted to the middle of the landside and the curved portion of the beam, a clear place being left between the mold-board and brace, as shown and described, for the purpose specified.

**187,820. J. RUCH,** Mount Eaton, assignor to himself and W. M. Johnston, Wilmot, Ohio. Plows. Feb. 13, 1877. Filed Dec. 30, 1876.

Claim. 1. The concaved washer F, the convexed slotted washer H, and the concaved washer I, in combination with the rounded upper end of the standa d D, the bolt E, and the mortised beam G, substantially as herein shown and described.

2. The combination of the bolt J, pivoted to the rear end of the plow beam, the block K, the slotted cross-bar L, pivoted to the handles, and the bolt M with the plow beam G and the handles N, substantially as herein shown and described.

**188,018. I. R. KERN,** Bloomington, Ill. Plows. Mar. 6, 1877. Filed Feb. 8, 1877.

Claim. 1. The combination, with the handles and mold-board and landside of a plow, of the beam and standard, constructed of one piece of metal, made flat or oval, and having the rib e on each side thereof, said standard being made smooth to the top of mold-board, curved irregularly forward, and curved laterally from the top and over the mold-board, all as herein shown and described, and for the purpose specified.

2. The combination, with the bolt and nut G e, or their equivalents, of the handles having the series of the horizontal teeth and corrugations g g', and the beam having the series of corresponding teeth and corrugations h h' upon each side thereof, whereby the handles can be raised and lowered, and secured in any desired position, substantially as and for the purpose specified.

**188,166. P. G. MILLER,** Sycamore, Ill. Plows. Mar. 6, 1877. Filed Aug. 16, 1876.

Claim. In a plow, the combination of the share D, having the rear projecting lip i, and the mold-board A having recess g and vertical landside portion A', with the triangular standard and plate E, constructed as described, whereby the share and mold-board are secured from the inside without a bolt-hole upon their wearing surfaces, substantially as and for the purpose shown and specified.

**188,176. GEO. W. PETERSON,** Oxford, Ala. Plows. Mar. 6, 1877. Filed Dec. 13, 1876.

Claim. The beam A and bowed frame C C, as constructed, in combination with the standards E E, secured to each side of the frame, with the plow G', supported near each end to the standards as set forth.

**188,555. EDW. WIARD,** Louisville, Ky., assignor to Benj. Avery same place. Plows. Mar. 20, 1877. Filed Feb. 15, 1877.

The mold-board seat has a raised ear, which meets a corresponding one upon the share-block. These are bolted together, avoiding a bolt-hole upon the wearing-surface.

Claim. A plow provided with the lugs or flanges a and b, located beneath or on the under side of both the point and mold-board, and having a bolt, c, passed through them and fastened by a nut or key, substantially in the manner and for the purpose described.

**189,151. R. B. THOMSON,** Dansville, Mich. Plows. Apr. 3, 1877. Filed Feb. 10, 1877.

An angular plate bolted beneath the beam, having the landside arm grooved for a colter-holder.

Claim. The angular adjustable colter holder L, in combination with the arm G of the standard D and with the colter K, substantially as herein shown and described.

**189,496.** **J. REICH**, Buffalo, N. Y. Plows.  
Apr. 10, 1877. Filed Feb. 26, 1877.

Claim. 1. In a plow, the combination of the following elements: the curved beam A, having socket for the colter, and having the standard A', L-shaped in cross-section, one member forming the front portion of the mold-board, and supporting the rear wing thereof, the landside and frame secured to the other member of the standard, forming a support for the handles, substantially as shown and described.

2. The combination, with the plow-beam A, having the lugs *f* on its forward end, of the adjusting-screw P and the pivoted open disk L, as described.

3. The combination, with the plow-beam A, having the lugs *f*, of the adjusting-screw P, the pivoted open disk L, and the clevis N, as stated.

**189,885.** **GEO. WIARD and C. W. HOUGH**, East Avon, assignor to the Wiard Plow Company, Batavia, N. Y. Plows.  
Apr. 24, 1877. Filed July 17, 1876.

Claim. 1. The combination, with the rear standard G', cast with the transverse rib K, of the beam A, formed with two or more holes *m*, adjustable hook-bolt L, and interposed wedge N, all arranged as shown, so that the beam can be adjusted longitudinally, laterally, and vertically from the same standard, as hereinbefore set forth.

2. The combination, with the standard B and beam A, made longitudinally adjustable, of the U-shaped clamp H and strap *k*, provided with hooks *i i'* for holding the handle-brace I, substantially as and for the purpose hereinbefore set forth.

**190,500.** **ANTON LAUER and JU-LIUS HARTMANN**, Louisville, Ky. Plows. May 8, 1877. Filed Mar. 3, 1877.

The point and mold-board concave, the edge of the former being a colter or cutting-edge. A low landside with a branch in front extending up the standard.

Claim. The landside F, having its upper part extended upward upon the standard as high as the mold-board, and having an upward and outward curve, to cause its forward edge to coincide with the landside edges of the mold-board D and concave point E, in combination with the said mold-board and point, and with the standard C, substantially as herein shown and described.

**7,803. A. LAUER and J. HARTMANN**, Louisville, Ky. Plows. Patent No. 190,500, May 8, 1877. Reissued July 17, 1877. Filed July 5, 1877.

Claim. 1. The triangular point, constructed as described, in combination with the landside extended upward and outward, and the standard, substantially as and for the purpose specified.

2. The detachable landside F, having the upward extension *a* curved outward from the

beam, in combination with the mold-board and the point, the latter being extended upward, and secured to the landside extension, their upper portions having a corresponding curvature and lying in contact, substantially as shown and described, for the purpose specified.

**190,932.** **WM. M. TOWERS**, Rome, Ga. Plows. May 15, 1877. Filed Apr. 3, 1877.

Claim. 1. As a means for combining the mold-board I, landside K, and plow-point L with each other, and with the plow-foot B, the block H, provided with the recess *h*, and constructed in the manner substantially as specified.

2. In combination with the rear end of the beam A, provided with the vertically-elongated slot *a*, and with the handles M, the bolt *m*, arranged to pivot their lower forward ends upon said beam, the straps N, encircling said handles, and the bolt O, passing horizontally through the latter, said straps, and said slot *a*, substantially as and for the purpose set forth.

**191,022.** **J. D. BOWEN**, Roseburg, Oregon. Plows. May 22, 1877. Filed Sept. 16, 1876.

Claim. A sheet of steel, shaped to form landside B and shares A C, the whole adapted to be connected with parts D E F G, substantially as shown and described.

**191,446.** **WILLIAM S. LAWRENCE**, Kalamazoo, Mich. Plows. May 29, 1877. Filed Nov. 18, 1876.

Claim. 1. The standard B, provided with the shoulder *b*', in combination with the mold-board C and colter E, extending above the upper edge of the mold-board, flush with the top of the shoulder *b*', substantially as described.

2. The detachable lugs G G', bent as described, and adapted to be inserted between flanges on the mold-board or landside, for securing the handles to the mold-board and landside, substantially as and for the purpose set forth.

3. The handles F, in combination with the detachable lugs G G', constructed as described, the landside D, and mold-board C, substantially as set forth.

**191,688.** **LA FAYETTE W. LILES**, Jackson, Miss. Plows. June 5, 1877. Filed Mar. 23, 1877.

Claim. The pivoted standard B, provided with the circular-faced lug D, and the slotted standard C, provided with the grooves *g*, in combination with the beam A, provided with the grooved plate E, all constructed to operate substantially as and for the purpose set forth.

**192,930.** **W. PAINTER**, Albion, Ill. Stump Plows. July 10, 1877. Filed May 5, 1877.

A hollow standard with a horizontal web across its cavity and a cross bar upon its rear edges. It is cut away and shouldered to re-

ceive the mold-board. The latter has a flange extending up the landside instead of the ordinary landside.

Claim. The standard C having the cross-piece g and cross bar h and adapted to the mold-board, D substantially as shown and described.

**194,553.** T. B. JONES, Madisonville, Ky. Plows. Aug. 28, 1877. Filed June 26, 1877.

Claim. The combination with the landside and plow beam, of a broad flat standard having its upper end turned at right angles to its body and secured to the plow beam by two bolts and a brace rod having one end secured to the inner surface of the mold-board and the opposite end secured to the inner or landside of the plow beam substantially as set forth.

**194,961.** BENJAMIN K. EMERSON, Seville, Ohio. Mold Board Plows. Sep. 11, 1877. Filed Aug. 6, 1877.

The share and mold-board (about equally) form the cutting front of the plow, both of which extend some distance forward of the standard. The standard has a thin edge in front, and the mold board hooks around it by a short angle. The standard is abruptly curved backward and upward above the top of the mold board.

Claim. In plows the mold board D, having its dividing edge extending forward of the standard B, in line with the edge of the point or share and the inner side of the dividing edge formed at an acute angle to fit the corresponding angle of the standard for securing the two parts together in combination with said standard having its upper front edge, above the mold curved or receding back and its lower part embraced by the mold board extending forward of said curve substantially as and for the purpose set forth,

**195,303.** OSCAR F. PHILLIPS, Lynchburg, Va. Plows. Sep. 18, 1877. Filed July 17, 1877.

Claim. 1. A standard, A, formed with a neck A<sup>2</sup> constructed with a front face a<sup>4</sup> having a sharp curved surface and curved side face, a<sup>5</sup> gradually increasing in area and extensions a<sup>6</sup>, a<sup>7</sup>, and coupling plate A<sup>1</sup> substantially as and for the purposes shown and described.

2. The combination with a mold-board, B, provided with ribs b b as described, of a standard A, formed with a coupling plate, A<sup>1</sup> having vertical and inclined surfaces a<sup>2</sup> a<sup>3</sup>, and a neck A<sup>2</sup> having a front face a<sup>4</sup> and side face a<sup>5</sup> constructed to operate substantially as shown and described.

3. The combination with the mold-board B, angular brace C, and point D all constructed as described, of the landside E, constructed with an inclined front face, e, recess e' and removable face-plate E<sup>1</sup>, having a sole-plate, E, substantially as set forth.

**195,406.** JOSEPH SEAMAN, Chicago, Ill. Plows. Sep. 18, 1877. Filed Apr. 13, 1875.

Claim. 1. The frame A<sup>1</sup>, having the elongation d<sup>4</sup> and brace or standard d<sup>1</sup>, and constructed with the longitudinally-mortised lateral projection or shoulder a<sup>2</sup>, adapted to receive the vertically and laterally adjustable share-lever B, and allow the same vertical and lateral movement for adjusting the share vertically or laterally, substantially as shown and described.

2. The combination, with the frame A<sup>1</sup>, having the longitudinally mortised shoulder or projection a<sup>2</sup>, of the laterally and vertically adjustable share-lever B, supporting the share A, and coupled to the frame at its rear end by the coupling d, substantially as shown and described.

3. In combination with the frame A<sup>1</sup>, having the mortised shoulder a<sup>2</sup>, the share-lever B, having the head-piece b', and made in two separable sections, coupled at B', substantially as shown, and for the purpose specified.

4. The share-lever or supporting-bar B, having the head-piece b' fitting a socket in the share, and provided with a wooden plug inserted in the bolt-hole for the reception of the share-bolt a<sup>6</sup>, substantially as described.

5. The horizontal wheel-slides m m and vertical wheel-standards n n, beveled as shown, in combination with the beveled recessed block O and the correspondingly-beveled recessed blocks or keys secured by bolts or pins to the beam I and slide-heads p', respectively.

6. The combination, with the land-wheel M', of the skim-colter S, arranged in front of said wheel, and attached to the wheel-standard, substantially as described and shown.

7. In combination with the draft-rod L and clevis-pin l, the segmental slotted and beveled head-piece l<sup>1</sup>, slotted bolt l<sup>2</sup>, and adjustable clamping-blocks l<sup>2</sup> l<sup>3</sup>, substantially as shown and described.

**195,642.** JOSIAH J. PIATT, La Porte, Ind. Plows. Sep. 25, 1877. Filed May 12, 1877.

Claim. The improved plow herein described, consisting of the standard A, share B, mold-board C, wheel D, arranged on the under side of the mold-board, and supported by the brace D<sup>1</sup>, extending from the standard to the under side of the mold-board, and the brace D<sup>2</sup>, extending from the side of the wheel to the top of the mold-board, substantially as described, and for the purpose set forth.

**197,494.** JAMES POSEY, Nanjemoy, Md. Plows. Nov. 27, 1877. Filed Sep. 1, 1877.

Claim. In a plow, the wedge-shaped reversible point D, provided with double countersunk holes a and a', and an oblique groove, d and d', on either side, for the insertion of the forward end of the reversible wing E, in combination with the right angular-shaped adjustable heel G, the forward end of which abuts

against or braces the base of the point D, substantially as and for the purposes set forth.

**197,691. WM. M. TOWERS,** Rome, Ga.  
Plows. Nov. 27, 1877. Filed Sep. 29, 1877.

Claim. 1. The landside E, provided with the recessed projecting arm G, having the projections  $d$   $d'$ , in combination with the bifurcated standard B, substantially as described, and for the purpose set forth.

2. The curved plow-beam A, having a reverse bend at its rear end and offset e, substantially as described, and for the purpose set forth.

3. The curved plow-beam A, having an offset e, a reversed bend at its rear end, and perforated enlargement a, in combination with the bifurcated standard B, and adjustable handles F, substantially as described, and for the purpose set forth.

**197,918. HARRY WIARD,** Syracuse, N. Y. Plows. Dec. 4, 1877. Filed Oct. 15, 1877.

Claim. 1. The adjustable bar a, constructed, arranged, and combined with the mold-board, landside, and handles, as and for the purposes specified.

2. The spreader-rocker e, turning the sockets in the landside and mold board, and to which the ends of the handles are affixed by a cap and bolt, substantially as described, and for the purposes specified.

3. The combination of the clevis i, having slots i' and cogs or lugs l thereon, with the end of the plow beam, having cogs m projecting from its sides, so that the cogs l enter between the cogs m when the clevis is drawn forward to retain it at the elevation desired.

**9,189. HARRY WIARD,** Syracuse, N. Y. Plows. Original No. 197,918. Dec. 4, 1877. Reissued May 4, 1880. Filed Feb. 24, 1880.

Claim. 1. The adjustable bar a, constructed, arranged, and combined with the mold-board and handles, as and for the purposes specified.

2. The spreader-rocker, e, turning in sockets, as described, to which the handles are affixed, substantially as described, and for the purposes specified.

3. The combination of the clevis i, having slots i' and cogs or lugs l thereon, with the end of the beam that has cogs m projecting from its sides, so that the cogs l enter between the cogs m, when the clevis i is drawn forward to retain it at the elevation desired.

**9,190. HARRY WIARD,** Syracuse, N. Y. Plows. Original No. 197,918. Dec. 4, 1877. Reissued May 4, 1880. Filed Feb. 24, 1880.

Claim. In combination, the adjustable shield or strip f, fitted into the landside in the manner described, and covering the joints between them, as specified, and held up to its place by the bolts, flanged slots g g', and wash-

ers, in the manner and for the purposes substantially as herein set forth.

**198,002. WILLIAM W. DAWSON,** Madisonville, Tex. Plows. Dec. 11, 1877. Filed Sep. 1, 1877.

Claim. The point B, made with a landside, b', fitting into a rabbet in the landside of the standard A, and made thicker and deeper than said rabbet, so as to project beyond and below said landside to receive the wear, substantially as herein shown and described.

**199,215. JOHN W. MAHONEY,** Bishop Creek, Cal. Plows. Jan. 15, 1878. Filed Sep. 29, 1877.

The standard has a rear flange, and is cast in one piece with the mold-board. An inner iron landside plate is bolted to the flange of the standard. The outer landside and point are of steel, and bolted to the iron parts.

Claim. The plow herein described, consisting of a mold-board B, standard A, and flange A', all cast in a single piece, and combined with the point D, and with the landside bars C and E, attached to the flange A', substantially as described.

**199,608. EDMUND YEISER,** Sheridan, Pa. Plows. Jan. 22, 1878. Filed Nov. 6, 1877.

Claim. 1. The combination, with the beam A and standard B, of the draft-rod T, secured, as shown, to the top part of the standard, and running forward under the beam, the eye-bolt V, with its two adjusting-nuts, and the nut V, adjusted upon the threaded portion of the draft-rod behind the eyebolt, all substantially as and for the purposes herein set forth.

2. The combination, with the plow-beam A, of the colter Q, having its shank perforated and notched, as described, the notched yoke P, set-screws R R, bow O, and flanged plate S, all substantially as and for the purposes herein set forth.

3. The combination of the mold-board E, having rib e<sup>1</sup> and lug e<sup>2</sup> upon its under side, the mold-board handle K, and the rod L, secured to the handle by one of the bolts fastening said handle, and the upper end of the rod passing through the lug e<sup>2</sup>, and held by nuts on both sides of said lug, substantially as and for the purposes herein set forth.

**199,812. DANIEL P. FERGUSON,** Jonesborough, Ga. Plows. Jan. 29, 1878. Filed Dec. 5, 1877.

The upper end of the standard is bifurcated, embracing and extending above the beam, embracing also a slotted wedge-shaped block, the securing-bolt passing through the upper end of both arms and through the block. A pivoted brace connects the lower end of the standard and the beam rearwardly.

Claim. The combination of the slotted sliding block with the beam and the standard, whose forks are connected above the beam by

means of the transverse bolt, which passes through the block, as shown and described.

**200,478. JONATHAN H. RIGGAN.** Forestville, N. C. Plows. Feb. 19, 1878. Filed Oct. 6, 1877.

Claim. 1. The sweep N, having wings, and recessed, as shown and described, so that it may be substituted for point D, as set forth.

2. The combination of the guard-plate P with the standard A and the sweep, to prevent the seat for the mold-board from being worn, substantially as herein shown and described.

**200,861. HORATIO GALE,** Albion, Mich., assignor to Gale Manufacturing Company, same place. Plows. Mar. 5, 1878. Filed Dec. 31, 1877.

Claim. In a plow, the standard E, curved to the front and rear, and having the vertical flanged recess m on the extreme forward and upper part of the front projection of the standard for receiving a jointer-arm D, in combination with an adjustable beam F, pivoted to the forward projection of the plow-standard, substantially as described and shown.

**201,153. SAMUEL H. BOGENRIEF** and WM. PATTISON, St. Cloud, Minn. Plows. Mar. 12, 1878. Filed Dec. 6, 1877.

Claim. As an improved article of manufacture, the plowshare D, the line of whose back edge or end A is parallel with the landside E, and designed as described, so that it may be joined to the mold-board, and form, when so joined, a continuous line from the lower back point of the share to the upper back point b of the mold-board.

**201,222. PATRICK H. BURNS** and WILLIAM G. McELHANY, Indiana, Pa., assignors to said Burns. Plows. Mar. 12, 1878. Filed June 11, 1877.

Claim. The standard B, made convex on one and concave on the other side, notched and shouldered to receive the landside, mold-board point, and share, and in combination therewith, as shown and described.

**201,471. CLINTON A. WEED,** Racine, Wis., assignor to Case, Whiting & Co., same place. Plows. Mar. 19, 1878. Filed Nov. 1, 1877.

Claim. 1. The plow-beam D, pivoted in the enlarged slot of the handle-post E, and having its rear end curved downward and forward to enter the mortise at F, its penetration into said mortise being limited by holes L and pin M, substantially as shown and described.

2. The combination of the adjustable beam D, slotted handle-post E, provided with cover H, and dovetailed frog P, all constructed substantially as described.

**201,510. LOUIS EBERLE, Sr., EMIL EBERLE,** and LOUIS EBERLE, Jr., Mabelvale, Ark. Plows. Mar. 19, 1878. Filed Jan. 19, 1878.

Claim. In combination with the plow-beam,

stock, and colter, the stay-bar N, with slot and rod, as described, the keys q t, and set-screw s, substantially as and for the purposes herein set forth.

**201,786. CORNELIUS KOPPEN-HEFFER,** Halifax, Pa. Plows. Mar. 26, 1878. Filed Jan. 31, 1878.

The handle adjusts on undercut ribs cast on the mold-board, forming flanges for the screw-head. The beam is adjusted laterally by the set-screws, and vertically by screw on rear end of beam.

Claim. 1. The iron plow-beam C, reduced, screw-threaded, and bent down at its rear end, and combined, by means of the bolt a and nut c, with the plow having extension B and lips b b, substantially as shown and described.

2. In combination with the plow having extension B and slotted lips b b, the plow-beam pivoted to said extension, and bent down and inserted into the slots of said lips at the rear end, and having a fastening-nut c, and adjusting-screws f f, substantially as and for the purpose described.

**202,688. GEO. W. WIMPEE** and WM. F. WIMPEE, Centre, Ala. Plows. Apr. 23, 1878. Filed June 9, 1877.

Claim. In a plow, the combination of the slotted and perforated beam A, cutting standard and landside B B', formed in one piece, and curved slotted, or double brace H, the standard and brace arranged to be placed at different positions on beam A, to adapt it to carry a turn plow or a sweep, or to be used without either as a root or sod cutter, substantially as shown and described.

**202,746. JACOB OLDENDORPH, Jr.** Waterloo, Ill. Plows. Apr. 23, 1878. Filed Feb. 26, 1878.

Claim. The combination, in a plow, of the brace F, connecting the beam and mold-board, with the braces G H, bolted to said brace F and to the handles, as shown and described.

**202,817. GEORGE S. HAVEN,** Racine, Wis. Plows. Apr. 23, 1878. Filed Feb. 16, 1878.

Claim. 1. The combination, with the plow H I J, of the brace L, having slot n and notches x, the standard B, clip R, fastened to the standard with a set screw, k, and provided with the flange p, tooth i, and bolt t, and the nut s, substantially as and for the purposes herein set forth.

2. The combination, with a plow beam, A, of the slotted casting O, handles C C, with the rod b, the forked brace G, and set screw f, for the purposes set forth.

3. The combination, with the handles C C, of the standard B, clip E, with plate E' and set screw d, the forked iron D, with plate D', and the bolt c, substantially as herein set forth.

**203,192. GEORGE REESE** and PAUL REESE, New Albany, Ind. Plows. Apr. 30, 1878. Filed Mar. 12, 1878.

**Claim.** 1. The combination, with the beam standard C, casting B, and arm G, with elongated bolt f, of the handles H H, clips k m, arm I, clip m', arm J, having the flange n and slot n', and the nuts p p, substantially as and for the purposes herein set forth.

2. The reversible double spear-bar L, provided with the points P P, forming recesses at each side, in combination with the reversible filling-bar L', having its ends formed with tenons to fill the recesses of the points, as and for the purposes herein set forth.

**204,361. FRANS NITSCHMANN,** Flatonia, Tex. Plows. May 28, 1878. Filed Mar. 30, 1878.

**Claim.** 1. In combination with a plow and plow beam, the rods d and h, connected directly to the landside of the plow, and passed upward through the beam, and provided, respectively, with the thumb nut h and nut i above and below the beam, as and for the purposes herein set forth.

2. The combination, with the share C and perforated bar D, of the mold-board H, provided with the lips p and pin s, and a lever or handle for adjusting the mold-board, substantially as herein set forth.

3. The combination of the movable mold-board H, lever I, perforated post J, and ratchet bar L, substantially as and for the purposes herein set forth.

**204,902. JOHN LANE,** Chicago, Ill. Plows. June 18, 1878. Filed Dec. 17, 1877.

**Claim.** The plow-frog frame formed of one piece of metal, consisting of the support B, having the flange A springing therefrom behind the perforation a, leaving the support B extending forward alone to support the point, and with the ear C and perforations a b c d e f, as shown, by which the landside bar D, standard E, mold-board F, share G, and share turn down H are attached, and whereby the perforation a may be high up near the share, all constructed substantially as shown, and for the purpose set forth.

**204,998. MILTON ROSS,** San Jose, Cal. Vineyard-Plows. July 18, 1878. Filed Apr. 10, 1878.

**Claim.** 1. The transverse guide-bars C, having the bar D moving between them, in combination with the curved beam E, pivoted at its front end, and having the handles F secured to its rear end, substantially as shown, and for the purpose herein described.

2. The beam E, pivoted at its front end, united to the laterally-sliding bar D, as shown, and having the handles F attached to its rear end, in combination with the plow-beam, H and crank I and locking pins J and K, or equivalent device, substantially as shown, and for the purpose herein described.

**205,491. JOHN LANE,** Chicago, Ill. Plows. July 2, 1878. Filed Mar. 19, 1878.

**Claim.** 1. In combination with standard C,

handle J, and land bar H, the single bar A, bent at right angles near its center L-shape, and extending from the handle J to the rear part of the land-bar H, and detachably bolted to the handle J and land-bar H, and the angle a<sup>2</sup>, attached to the standard C some distance above the end, as shown, all arranged and combined as shown.

2. In combination with the mold-board handle D and mold-board K, the bar B, having the shoulder b, arm b<sup>1</sup>, and arm b<sup>2</sup>, and arm b<sup>3</sup> attached directly to the mold-board K, and the end of the handle D resting on the shoulder b and against the mold-board K, as shown, and the arm b<sup>2</sup> extending above the shoulder b on the inside of the handle D, and thereto attached directly with two bolts, as shown, as and for the purpose set forth.

3. In combination with the beam handle J, mold-board handle D, and mold-board K, the bar B, having the shoulder b, arm b<sup>1</sup>, and arm b<sup>2</sup>, brace d and ear e in a single bar, and arm b<sup>3</sup> directly attached to the mold-board K, and the end of the handle D resting on the shoulder b and against the mold-board K, as shown, and the arm b<sup>2</sup> extending upward on the inside of the mold-board handle D, and thence bent, forming brace d, extending from the mold-board handle D to the beam handle J, and the ear e formed on the end of the brace d, as shown, and the bar B, attached with the bolts directly to both handles J and D, as shown, all as and for the purpose set forth.

**205,552. CHARLES E. HUNTER,** Fredericksburg, Va. Plows. July 2, 1878. Filed Oct. 22, 1877.

**Claim.** 1. The standard B of a plow, having the curve n, horizontal projection m, flange B', and point d upon said flange, as and for the purpose set forth.

2. The standard B, as described, having the flange B' and the projection m, curved toward the landside, to form a face for the mold-board, in combination with the mold-board, cast in two pieces, C and C', said parts being united by an angular joint, and secured directly to the standard by bolts, substantially as described.

3. The standard B, provided with a perpendicular part and curve n, in combination with the under inclined landside E, substantially as described.

**205,631. LEWIS GIBBS,** Canton, Ohio, assignor to himself, John R. Bucher, and William A. Wikidal, same place. Plows. July 2, 1878. Filed Mar. 2, 1878.

The rocking plate upon the head of the standard, the double plates connecting beam and handle, and the slotted colter-arm allow the vertical adjustment of the beam. Cross-bolt in clevis rigid with draft-link. The round does not pass through the handles.

**Claim.** 1. The combination of the standard B with lug or projection b and the share E, with the depression or socket d, constructed as described, and for the purpose set forth.

**2.** The adjustable handle-brace frame L L, made in two pieces, connected together and to the handles, substantially as set forth.

**3.** In a plow, the combination of a jointed clevis at the rear end of the beam, made in two parts, for attachment to the beam and handle, and a knee-colter attached to the standard by a lug, bolt, and ratchet, both admitting of up and down movement, as herein specified.

**205,657. LORENZO LING,** Pulaski, N. Y. Plows. July 2, 1878. Filed May 14, 1878.

Claim. In a plow having the handles adjustably secured to the standard, the standard b, formed with the arm or extension i, which is longitudinally recessed on both sides, and the links l l, detachably secured in the recesses on said arm, in combination with the handles m m and the fastening-bolts, substantially as and for the purposes herein set forth.

**205,977. OSCAR F. PHILLIPS,** Lynchburg, Va. Plows. July 16, 1878. Filed Feb. 25, 1878.

Claim. In combination with the plow-beam b, secured to and rotating on the standard b<sup>3</sup> of the plow b<sup>4</sup>, and having its rear end extended between the handles c c' and handle c, the bolt d, having the attachments d<sup>1</sup>, shoulder d<sup>2</sup>, and nut d<sup>3</sup>, and clevis A, composed of the horizontal parallel bars a a and vertical plate a<sup>1</sup> and lugs a<sup>2</sup>, the end of said beam sliding horizontally between the fixed bars a a on the bolt d, all constructed and operating as shown and described.

**206,639. FRIEDERICH STRIDDE,** Menasha, Wis. Plows. July 30, 1878. Filed June 13, 1878.

Claim. **1.** The combination, in a plow, of a laterally-adjusting screw, carried by the beam and connected to the plow-standard by a fixed arm, with a supporting clamping device adjustably connecting the beam with the handle, substantially as and for the purpose herein set forth.

**2.** The slotted screw-carrying plate p, having the beam-lapping ears p<sup>3</sup>, in combination with the screw-eyed connecting-arm n, fixed to the plow, whereby said plate has an automatic adjustment in the line of the beam, to compensate for the lateral adjustment of the beam and prevent injury to the adjusting-screw threads, as set forth.

**3.** The colter-arm z', having a convex bearing z, in combination with the side link y and laterally-adjusting beam, whereby the latter may be turned upon its standard without twisting the colter.

**206,806. JACOB MARTIN,** Canton, Mo. Plows. Aug. 6, 1878. Filed Sep. 17, 1878.

Claim. In a plow, as a means for regulating the depth of the furrow and laterally adjusting the plowshare to suit the team-employed,

the standard D, having a convex lug upon its upper end, and provided with the angle-plate E, having slot l, which engages a bolt secured upon the lower end of the brace-bar K, in combination with the mold board H, rod M, and slotted plate N, substantially as set forth.

**206,958. CHARLES P. McWANE,** Wytheville, Va. Plows. Aug. 13, 1878. Filed June 19, 1878.

Claim. The combination of the colter H, having shank l, downwardly-tapering recess d, and groove or recess f, with the beam E, having perforation e, mold-board A, having groove b and projecting-lug e, and share J, the latter arranged, as herein described, to be secured to the mold-board by a single screw or bolt, which also serves to secure the colter in position, substantially as and for the purpose herein set forth.

**207,174. LEWIS GIBBS,** Canton, Ohio. Plows. Aug. 20, 1878. Filed July 17, 1878.

Claim. **1.** The combination, with a toothed segment secured to a plow-beam end, of a clevis, which adjustably engages therewith, the arms of said clevis being respectively formed with horizontal L-shaped slots adapted to provide bearing for the draft-bolt in the upper or vertical portion of said slots, and to allow the clevis to be longitudinally adjusted when said bolt is loosened by moving the arms so as to cause said bolt to work in the horizontal or lower portion of said slot, substantially as set forth.

**2.** The clip G, having a front and rear bearing beneath the beam, and connecting lips or flanges clasping the sides of the beam, provided with holes for the clamping-bolts G<sup>1</sup>, and dovetailed socket to receive the standard and allow its lateral adjustment, substantially as shown and described.

**3.** The combination, with a plow-beam, of a colter device consisting of a clip embracing the beam without bolts passing through the latter, and capable of adjustment longitudinally on the beam, a flanged or dovetailed bearing beneath the beam for reception and lateral adjustment of the colter-standard, and a standard and colter adapted to be adjusted vertically along said standard, substantially as and for the purposes described.

**207,873. FRANK K. JENNINGS,** Ashtabula, Ohio, assignor of one-half his right to Phoenix Iron Works Company, same place. Plows. Sep. 10, 1878. Filed June 13, 1878.

Claim. **1.** The landside A, hinged at its front end to the standard or short landside, and having its rear end adjustable in or out, substantially as shown and described.

**2.** The combination of the hinged landside A, bolt or spreader F, with oppositely-cut screw ends, and mold-board B, substantially as shown and described.

**3.** The sectional or double arc E, having the slots e and the arc-shaped slot e', and a lug or

ear upon each arc, whereby the parts are made laterally adjustable upon each other for spreading the plow-handles, substantially as shown and described.

4. The combination of the hinged landside A, mold-board B, handles D, double arc E, spreader F, and beam C, substantially as shown and described.

**209,174. JOHN LANE,** Hyde Park, Ill. Plows. Oct. 22, 1878. Filed June 27, 1878.

Claim. 1. The plow-beam or standard A, having a shouldered recess *a*, and consisting of a wrought-metal bar forged and formed in dies, which give shape to the bottom end of the beam or standard, and swage the lip forming the shouldered recess *a* on the rear side of the beam or standard, substantially as and for the purpose shown.

2. The combination of plow-beam or standard A, having shouldered recess *a* and bolt-hole *e*, with the bar *h k*, in which the bar *h k* is made of a single piece, bent curved to fit the shouldered recess *a*, upon which it is secured by a bolt passing through the hole *e*, substantially as and for the purpose set forth.

**209,758. ANDREW GOODYEAR,** Albion, Mich. Plows. Nov. 12, 1878. Filed Mar. 25, 1878.

Claim. In combination with the landside of a plow, the inclined lugs B and B', attached thereto, and adjustable arm C, pivoted in one lug and adjustably supported in the other, for adjusting the double-beveled wheel D, both vertically and laterally, substantially as set forth.

**209,779. JAS. A. SMITH,** Wenona, Ill. Plows. Nov. 12, 1878. Filed July 27, 1878.

Claim. 1. In a plow, the combination of supporting wheel F, axle E, adapted to serve as a brace between the mold board and landside, with capability of horizontal adjustment along the supporting brackets, the dirt-collar *e*, and canopy G, attached to said axle, substantially as described.

2. The combination and arrangement of the axle E, respective brackets *a* and *b*, with dirt-collar or collars *e*, wheel F, and canopy G, with the plow A B, as described.

**210,202. THOMAS E. JEFFERSON,** Boston, Mass. Plows. Nov. 26, 1878. Filed Oct. 16, 1878.

A vertical spiral cutter at the rear of the mold-board, a roller or wheels to sustain the forward end of the plow, and a pair of rear wheels standing obliquely under the rear end, with a friction roller in the front landside.

Claim. 1. In a plow, a loosely-rotating screw, or spiral *h*, located at the rear end of the mold-board *b*, substantially as and for the purpose set forth and described.

2. In a plow, the forward horizontal roller, *g*, or a pair of wheels arranged beneath the forward end of the plow, for the purpose of sustaining the entire weight of such forward end

without much friction, substantially as set forth.

3. The combination of the rear oblique wheels, *n p*, the lower horizontal forward roller or wheels, *q q' q''*, and the vertical anti-frictional roller *m* at the forward end of the landside of a plow, substantially as and for the purpose set forth and described.

**210,728. JAMES URIE, Sr.,** Evansville, Ind. Plows. Dec. 10, 1878. Filed Nov. 25, 1878.

Claim. 1. In a plow, the curved standard C, V-shaped in cross-section, having the frog B, and provided with slots *a* and *c*, hook-bolt *b*, and set-screw *e*, substantially as and for the purpose set forth.

2. In a plow, the combination of the curved standard C, slotted at *c*, with the hook-bolt *b*, nut *d*, set-screw *e*, and curved beam A, constructed substantially as and for the purpose set forth.

**211,557. JAMES I. EAVENSON,** Paoli, Pa. Plows. Jan. 21, 1879. Filed Dec. 19, 1878.

Claim. 1. The plow-standard, in combination with the body *d*, that has the mold-board and plow-point secured to it, and a mechanism connected to and operated by the handles for moving the body upon the standard, substantially as shown.

2. The combination of the standard *b*, having the opening *c* and foot *p*, with the body *d* and an eccentric operated by the handles, substantially as set forth.

3. The body *d*, having the extensions *l*, handles connected to the operating eccentric, and provided with a spring catch, flange *n*, and standard *b*, having the foot *p*, substantially as described.

**211,822. WILLIAM H. WILDER,** Waterport, N. Y. Plows. Jan. 28, 1879. Filed Apr. 17, 1878.

Claim. 1. The round sockets having end holes for the bolts *G*, in combination with the handles *B* and round *E*, substantially as set forth.

2. The sockets *L*, having lips to embrace and strengthen the handles, and also provided with notches *Z*, and the lugs *K*, having lips to embrace and strengthen the handles, and also provided with notches, in combination with the landside and mold-board having notches, substantially as and for the purposes set forth.

3. In a plow having a landside plate, *A*, cast with the beam, (in one piece,) and extending to the bottom of the plow, the two face-plates *M* and *P*, substantially in the manner and for the purposes set forth.

**211,892. GEORGE DODGE,** Kalamazoo, Mich., assignor of one-half his rights to Ethan Allen, same place. Plows. Feb. 4, 1879. Filed Sep. 17, 1878.

Claim. 1. The standard *A*, constructed as described, in combination with the plow beam

C and the fastening plate or plates E, provided with slots  $e^1$ , substantially as described.

2. The plow beam C, in combination with the plates E, grooved as described, and provided with slots  $e^1$ , the standard A, having a head or plate,  $a$ , at its upper end, and the bolts D, substantially as described.

3. The fastening plates E, provided with the notches  $e^2$ , in combination with the cylindrical beam C, having a head  $c$ , fitting the notches, to prevent the beam from turning, substantially as described.

4. The plow wheel H, in combination with the supporting post I, plates K K', and eyebolts L, which permit the wheel to be adjusted vertically, or turned to run on or off the land, and at the same time clamp it firmly at any point, and in the position in which it may be adjusted, substantially as described.

5. The wheel-post I, in combination with the fastening plates K K', beam C, and eyebolts L, substantially as described.

6. The standard A, provided with pins  $a'$ , and the support N, provided with apertures  $n$ , combined with the tubular handles M, substantially as set forth.

7. The sod-wheel H, provided with the conical sleeve  $s$ , closed at its outer end, and the correspondingly shaped bearing  $t$ , provided with the flange  $u$ , combined with the collar  $v$ , by which means the wheel is secured to the horizontal journal, substantially as shown and described.

**8,926. GEORGE DODGE**, Kalamazoo, Mich. Plows. Patent No. 211,892, Feb. 4, 1879. Reissued Oct. 14, 1879. Filed Aug. 8, 1879.

Claim. 1. The combination, with a standard and a plow-beam, of two clamping-plates, formed to provide an opening, within which the rear portion of the beam is fitted, together with fastening devices adapted to secure said plates in different positions on the standard, and thereby laterally adjust the plow-beam, substantially as set forth.

2. The combination, with a standard and a plow-beam, of two grooved plates adapted to embrace the rear extremity of the beam, and bolts which work in slots formed in said plates, to secure the latter, together with the beam, in lateral adjustment on the standard, substantially as set forth.

3. The combination, with a standard and a plow-beam, of two plates, respectively provided with a centrally-grooved opening, within which the rear extremity of the beam is fitted, and also having segmental slots on both sides of said opening, together with bolts formed rigid with the standard, which work in said slots, substantially as set forth.

4. The combination, with a plow-beam whose rear end is provided with a laterally-projecting head, of two beam-clamping plates, respectively provided with a notch, in which said head fits to prevent the beam from rotary movement, and fastening devices which secure said plates,

together with the beam, to the standard, substantially as set forth.

5. The combination, with a plow-beam whose rear extremity is provided with a hole and two plates, respectively, grooved to form an opening, within which the beam fits, of bolts which pass through slots in said plates and secure the latter, together with the beam, in horizontal adjustment on the standard, one of said plates being formed with a pin, which fits in said hole in the beam and prevents displacement of the latter between said clamping-plates, substantially as set forth.

6. The combination, with a standard formed with rear projecting pins, of tubular plow-handles whose forward extremities fit over said pins, and fastening devices which secure said parts together, substantially as set forth.

7. The combination, with a skeleton-frame which supports the plow-handles, and whose lower portion projects forward, of a bracket which extends downward and rearward from the standard, together with bolt-and-slot mechanism, which adjustably secures said frame and bracket together, substantially as set forth.

8. The combination, with a plow-beam and a wheel-standard, of a plate formed with a horizontal recess, within which the beam fits, and a beam-fastening device which clamps the standard thereto, said recessed plate fitting about the upper and lower sides of the beam, and thereby maintaining the standard in operative position, substantially as set forth.

9. The combination, with a plow-beam formed tubular throughout its length, and a screw-cap fitted on its threaded forward extremity, of a draft-rod which passes through a slot in said cap, and a spiral spring whose rear end bears against a head formed on the inner end of said rod, while its opposite end bears against said screw-cap, together with a clevis, substantially as set forth.

**212,188. THURE CARLSON**, Louisville, Ky. Plows. Feb. 11, 1879. Filed Dec. 31, 1878.

The landside is thickened toward the front to fill the space between the double beam, and provided with a seat for the mold-board. Both beam and handles adjust upon the landside.

Claim. The landside A, forming the standard of the plow, and having the slotted arm  $b$  and the slotted forward extension  $c$ , of increasing thickness, in combination with the double beam C and adjustable handles B, substantially as and for the purpose set forth.

**212,295. LEWIS E. WOODWARD**, Waco, Tex. Plows. Feb. 11, 1879. Filed Sep. 25, 1878.

The plow-standard is hinged to a bracket. Its cross slot and set-screws allow adjustment of point to or from land, and the slotted handle and flexible joint permit the beam to be depressed.

Claim. The combination of the slotted bracket  $c$ , hinged standard  $b$ , and set-screws  $f$

*f* with the beam *a* and slotted handle *g*, arranged for vertical and lateral deflection of the plow-beam, substantially as and for the purpose specified.

**213,188. ANDREW GOODYEAR,** Albion, Mich. Plows. Mar. 11, 1879. Filed Mar. 14, 1878.

A yoke to receive the foot of the handles and permit lateral and vertical adjustment. A curved bearing to the wheel-standard to adjust it to run on or off land. A skeleton-beam to adjust the draft vertically or to either side.

Claim. The combination, with the beam and handles of a plow, of a yoke, *H*, provided with the lateral slot, and having depending arms provided with elongated slots, for the attachment of the handles, and serving to permit of the adjustment of the beam and handles, substantially as set forth.

**213,661. WILLIAM S. JOHNSON,** Knoxville, Tenn., assignor of one-third his right to Arvin J. Johnson, same place, and George B. Cowlam, Frederick, Md. Plows. Mar. 25, 1879. Filed Nov. 13, 1878.

Claim. The combination, in a plow, of a reversible and extensible share with a reversible and extensible point, substantially as and for the purpose herein shown and specified.

**214,201. JOSEPH SEAMAN,** Racine, Wis. Plows. Apr. 8, 1879. Filed Feb. 27, 1879.

Claim. 1. In a plow, the landside *A*, having the projection *B*, to each under the point *s*, projections *C*, dovetailed slide *G*, and a bolt for passing through the standard into the slide, substantially as set forth.

2. The combination of the standard *c*, draft rod, cleat *m*, and eyebolt *n* with the handles, substantially as specified.

3. The tubular rod *p*, trusses *o*, plates *q*, projections *r*, and bolts *s*, substantially as shown.

4. The point *s*, having a recess to receive the point of the standard, and a projection *t*, in combination with the hook-fastening rod *z*, as described.

5. The mold-board fastened to the standard by means of the catches *g*, bolt *h*, casting *x*, and bolt to fasten the casting and slide together, as specified.

**214,259. THOMAS MEIKLE and BARRY COLEMAN,** Louisville, Ky. Plows. Apr. 15, 1879. Filed Feb. 10, 1879.

Claim. The plow-point *D*, provided with a recess *E*, having an inclined wall *e*, and socket *e'*, in combination with the landside *F*, the standard *B*, the frog *C*, provided with the inclined edge *c'* and the mold-board *A*, the landside, standard, and frog extending forward, as shown, so as to enter and be retained in the socket *e'* of the recess, substantially as set forth.

**214,476. AMOS W. WASHBURN,** Greenville, Pa. Plows. Apr. 15, 1879. Filed Feb. 24, 1879.

Claim. 1. A plow standard having the

guide-piece *A'*, constructed with notches and inclined edges *f'f'* and *d'd'*, all substantially and for the purpose described.

2. The combination of the mold-board *D*, having the notch *a*, and the standard having a notched flange, *a'*, and guide-piece *A'*, substantially as and for the purpose described.

3. The plowshare *B*, having the bearings *b'b'c* on the lower side, recesses *c'*, and thin section *c'*, made to cover the guide on the standard, substantially as and for the purpose described.

**214,737. CHARLES O. WILDER,** Monmouth, Ill., assignor to J. I. Case Plow Company, Racine, Wis. Plows. Apr. 22, 1879. Filed Nov. 22, 1878.

The curved beam extends behind the mold-board and under the plow. Its lower end is forked and bent so as to form seats for and wholly support the mold-board, share and landside.

Claim. 1. In a plow, the beam *E*, formed into two branches, *e'e'*, at the lower end, adapted to be secured as a brace to the mold-board, share, and landside bar, substantially as described, and for the purpose specified.

2. The angle-plate *G* and forked beam *E*, in combination with the mold-board, share, and landside bar, substantially as described, and for the purpose specified.

**214,924. JACOB KINSTLER,** Thomas Hill, Mo. Plows. Apr. 29, 1879. Filed Aug. 16, 1878.

Claim. The combination, with the pivoted beam *A*, of the flanged plate *C*, secured to the inner end thereof, the flanged plate *D* *d*, secured to the plow-handle, the perforated plate *E'*, and the diagonal brace *E*, substantially as and for the purpose specified.

**215,634. JOHN W. KLINELINE,** Middletown, Pa. Plows. May 20, 1879. Filed Apr. 3, 1879.

Claim. 1. The combination of the three-way reversible cutter, with curved cutting-edges, as described, the mold-board, recessed to fit behind the cutter, and the landside having the recess *d*, all constructed and fitted together substantially as described.

2. The combination of the sod cutter, the adjustable bar *e*, and the curved bar *E'*, the latter being secured to the standard *A'* by a dovetail fastening *a'a'*, and its rear end bolted to the landside, substantially as described.

**216,050. JAMES M. MATTHEWS,** Knoxville, Tenn. Plows. June 3, 1879. Filed Aug. 8, 1878.

Claim. 1. The plow-stock formed of the parallel bars *A*, curved upon the arc of a circle, and welded together at their ends, the curved brace-bar *F*, provided with the lugs *G*, and the arms *I J*, and the handles *H*, to adapt it to receive the operating parts of the plow, substantially as herein shown and described.

2. The combination of the mold-board *M*,

provided with the hooks N, the landside P, the brace Q, and the arm R, with the curved beam A, the curved brace-bar F, and the curved point and colter K L, substantially as herein shown and described.

3. The combination of the rest I', provided with the hook J', with the curved beam A, the curved point and colter K L, the mold-board M, and the share O, substantially as herein shown and described.

**216,772. EDWARD WIARD,** Litchfield, Minn. Plows. June 24, 1879. Filed Jan. 31, 1879.

Claim. 1. The landside portion C, having the angular bracket or lug c<sup>2</sup> cast upon its upper edge in the manner shown and described, whereby the lower end of a straight handle is fastened in a position some distance inward from the landside, as set forth.

2. The mold-board having its flange A<sup>1</sup> extended inward at A<sup>2</sup>, and with the bracket or lug a<sup>1</sup> cast on its under side and to the part A<sup>2</sup> of the flange A<sup>1</sup>, substantially in the manner and for the purpose described.

3. The combination of the frog d, provided with an oblong slot d<sup>4</sup>, brace d<sup>1</sup>, mold-board A, and detachable portion C of the landside, provided with an oblong lug c, for the reception of a nail, substantially as and for the purpose described.

4. The combination of the frog d, having a slot d<sup>2</sup>, and lug d<sup>3</sup>, and the combined point and share B, having a lug b b<sup>2</sup>, and the deflected passage e e', and nail E, substantially as and for the purpose described.

5. The combination of the lug b b<sup>2</sup> on the share and lug d<sup>3</sup> on the frog, forming a deflecting-aperture e, for the reception, bending, and retention of the nail E, substantially as described.

**216,773. EDWARD WIARD,** Litchfield, Minn. Plows. June 24, 1879. Filed Apr. 19, 1879.

Claim. 1. The point comprising the portions G G<sup>1</sup> G<sup>2</sup>, provided with the underlapping lug b and hook h', in combination with a mold-board provided with a fulcrum-bearing on its under side, in rear of the joint between the share and the mold-board, and the lever mechanism connected to the hook of the point, and with its fulcrum-pin resting in the fulcrum-bearing of the mold-board, substantially as and for the purpose herein described.

2. The combination of the mold-board provided on its under side with the fulcrum-bearing for the pivot of the lever mechanism, and with the adjusting stop-lug, also on the under side of the mold-board, the point provided with underlapping lug and hook, and the lever mechanism, substantially as described.

3. The combination of the point comprising the parts G G<sup>1</sup> G<sup>2</sup>, provided with a hook b', and lug b, and the mold-board having a frog with a sheath at a, and the lever mechanism, substantially as and for the purpose described.

4. The landside G<sup>3</sup>, provided with the oblong lug h, having the overlapping hook h', in combination with the frog of the mold-board, having an oblong slot i, substantially as and for the purpose described.

**217,368. AMANDES HACKMAN,** Blakesburg, Iowa. Plows. July 8, 1879. Filed Apr. 29, 1879.

Claim. The combination of the socket F, provided with the slots f<sup>1</sup> f<sup>2</sup>, the swivel screws G H, and the slotted wedges I, with the standard E and the beam A, substantially as and for the purpose set forth.

**217,759. CHARLES O. WILDER,** Mammoth, Ill., assignor to the J. I. Case Plow Company, Racine, Wis. Plows. July 22, 1879. Filed Nov. 22, 1878.

Claim. The plow-beam F, having a lower flattened end f, bolted to the share and mold-board, for the purpose of holding the share in place, and also bolted to the brace D, substantially as described.

**218,253. FERNANDO GAUTIER,** West Pascagoula, Miss. Plows. Aug. 5, 1879. Filed Apr. 28, 1879.

Claim. 1. The combination, with the landside of a plow, of the plate A, eccentric T, shaft S, and geared wheel D, having teeth E, as shown and described.

2. The combination, with an oscillating knife O, of the steel plate A, having a tapered shear-edged notch fixed to the landside, as specified.

**219,029. WILLIAM W. SPEER,** Pittsburgh, Pa. Plows. Aug. 26, 1879. Filed July 10, 1879.

Claim. The combination with the plow handles, of an index-brace provided with an elongated slot in its top plate, and with depending flanges or sides provided with notches or grooves, an adjusting bolt, and a bolt-plate or washer provided with the flanges on its ends, and also with V-shaped projections adapted to engage in the grooves in the index-plate, substantially as set forth.

**219,191. HARRY WIARD and WILLIAM R. BULLOCK,** Syracuse, N. Y. Plows. Sep. 2, 1879. Filed Aug. 8, 1879.

Claim. 1. The plow beam composed of the front and rear bent portions and straight parallel section in front of the standard b, for the purposes herein specified.

2. In combination with the plow beam, constructed as described, the notched and grooved saddle s, the ribbed standard d, and the clip t, substantially as specified.

3. In combination with the beam, formed as described, with notches in the flanges of the straight section, the notched and grooved saddle s, adapted to the hold and adjust the standard back and forth and affix the same, as and for the purposes specified.

4. The combination of the jointer or colter with the standard d, as herein described, by

means of a segmental curved shank having its concave curvature on the upper side for changing the pitch of the jointer properly, as herein specified.

**219,317. WILLIAM W. SPEER,** Pittsburg, Pa. Plows. Sep. 2, 1879. Filed July 11, 1879.

Claim. 1. The combination, with a standard having longitudinal grooves or notches formed in its upper end or plate and furnished with an elongated transverse slot, of a standard plate, having projections on its lower face, and provided with side flanges having curved inner bearing-surfaces, substantially as set forth.

2. In a plow, the combination, with the plow beam, of a flanged plate having curved inner bearing-surfaces, against which rests the plow beam, and notched under face, fitting corresponding notches in the upper end or plate of the standard, and a flanged plate having parallel inner surfaces for holding the rear end of the plow beam, the under face of said flanged plate being notched and adapted to fit in corresponding notches formed on the upper surface of the index-plate, substantially as set forth.

**219,687. MANLOVE BUTLER,** Vernon, Ind., assignor of one-half his rights to his right to P. C. McGannon, same place.

Plows. Sep. 16, 1879. Filed Mar. 13, 1879.

The point is secured to the under side of the frog by means of a bolt and a key having an incline engaging a stand upon said point, which is rendered adjustable by slots in the frog.

Claim. The point F, provided with the hole c, stud f, and points F<sup>1</sup> and F<sup>2</sup> in combination with the frog C and key G, constructed and operating as described, as and for the purposes substantially as set forth.

**231,034. JOHN B. CRENSHAW,** Richmond, Va. Plows. Oct. 28, 1879. Filed Aug. 25, 1879.

Claim. 1. The socket piece D, formed with the open recesses a a', to receive the shank of the point and the tongue of the share, in combination with the cap G, having a projecting tongue, f, to enter a cavity in the socket-piece, substantially as set forth.

2. The socket-piece D, formed with the recesses a a' and the beveled ledge h, to overlap the upper edge of the cap G, for the purposes set forth.

3. The reversible share F, constructed with a curved cutting edge, and with its ends inclined, forming the points i i', with the central tongue d, extending nearly the entire length, in combination with the socket-piece D, point E, and cap G, substantially as and for the purposes set forth.

4. The socket-piece D, with the shield L formed at its rear end to protect the rear edge of the share, for the purposes set forth.

5. The rotating diggers K, consisting of radial curved arms having bevel-edged teeth and mounted on a shaft in rear of a plow, in com-

bination with braces M and N, for sustaining the same in position, substantially as herein set forth.

**221,136. LEWIS E. WOODWARD,** Waco, Tex. Plows. Oct. 28, 1879. Filed July 1, 1879.

Claim. The combination, in a plow, of the landside F, having a step or offset, p, against which the brace E abuts, and the standard D, pivoted in a socket, C, the mold-board standard and brace being bolted together, as described, whereby the parts are braced so as to mutually resist strain, as set forth.

**221,798. JAMES I. EAVENSON,** Paoli, Pa. Plows. Nov. 18, 1879. Filed Sep. 26, 1879.

Claim. 1. In a plow, the combination of the standard pivoted to its lower front end to the frog and provided with a rack, the handles fastened to the mold-board and landside a rod h and spring catch i substantially as shown.

2. In a turn plow the combination of a standard and a tongue, attached to its top, instead of a plow beam and which answers as both a tongue and a beam substantially as shown.

3. In a turn plow the combination of a standard and a tongue attached to its top, instead of a plow beam and which answers as both a tongue and a beam and a double tree and a holdback, the parts being combined and arranged to operate substantially as set forth.

4. In a turn plow, the combination of a standard and a tongue attached to its top, instead of a plow beam, with a double tree that is adjustable endwise on the said beam, substantially as specified.

5. The point b, having the convex edge z, which is provided with braces q on its under side, substantially as specified.

6. The standard e, having an ellipse formed on each side of its lower end, in combination with the frog having a recess to receive the end of standard, forming the pivots on which the plow turns substantially as shown.

7. The combination of the brace n, having ears e', with the rack and bolt e'', substantially as set forth.

**221,901. RASMUS ADAMSON,** Minneapolis, Minn. Plows. Nov. 25, 1879. Filed Jan. 23, 1879.

Construction and arrangement of devices admitting of vertical and lateral adjustment of beam.

Claim. In combination with the plow-beam E, having slotted and serrated rear end E', standard D, mold-board B, and clamping devices a b c d, the plate F, hinged to the brace G, the serrated plate g, and screw-bolt h, substantially as and for the purposes set forth.

**221,975. JOHN S. ROBINSON and EDSON C. ROBINSON,** Canandaigua, N. Y. Plows. Nov. 25, 1879. Filed July 15, 1879.

**Claim.** 1. In a plow, the combination of a mold-board having upon it a lug A<sup>3</sup>, a removable plate A<sup>2</sup>, for preventing the earth and other substances from passing over the upper edge of said mold-board, and a lug A', cast upon the beam A, for securing in place the forward end of the plate A<sup>2</sup>, the parts being arranged to operate substantially as and for the purpose specified.

2. The adjustable socket B, provided with flanges B' and B<sup>2</sup>, for forming a receptacle for the lower ends of the handle, and a slotted arm B<sup>3</sup>, for adjusting its position, for the purpose of elevating or depressing the outer ends of said handles, in combination with the landside of the plow, substantially as set forth.

3. A plow having projections C C cast upon the upper and lower edges of its beam, which extend beyond the flanges thereof, whereby bearing-surfaces are formed upon the upper and lower flanges of the beam for the standard of the jointer to rest upon, substantially as and for the purpose set forth.

4. The combination of the beam A, having in it a slot or aperture C<sup>3</sup>, the lugs C C, the standard C', and wedge C<sup>2</sup>, the parts being arranged for operation substantially as set forth.

**222,894. ANDREW GOODYEAR,** Springport, Mich. Plows. Dec. 23, 1879. Filed July 30, 1879.

**Claim.** 1. The combination of the stock A, having the curved and vertically-corrugated front face, with the beam F and rod E, all substantially as set forth, and for the purpose specified.

2. In combination with the curved stock A, the bifurcated arm L' and L<sup>2</sup>, having its upper prong corrugated and slotted, and its forward end grooved for the reception of a jointer L, the arrangement of parts being as shown, whereby the arm is carried upon the stock of the plow, and the jointer is made adjustable vertically, as described.

**222,984. LUKE CHAPMAN,** Collinsville, Conn., assignor of one-half of his right to the Collins Company, same place. Plows. Dec. 30, 1879. Filed July 3, 1879.

The flange on the landside extends across and has bolted thereto the flanges of the mold-board and the share, by which means the several parts are firmly united without bolt-holes on their working faces.

**Claim.** The mold-board a, with its flange a', the share b, with its flange b', and the landside c, with its base-flange c', extending and secured to the other flanges, all combined, substantially as shown and described.

**223,361. PETER KESSLER,** Butler, Md. Plows. Jan. 6, 1880. Filed Oct. 3, 1879.

**Claim.** The combination, in a plow, of a mold-board and a landside, each having curves on their forward edges which conform, a cutter provided on the inner side with a curved shoulder a, which covers the curved edges of

the mold-board and landside, and having at its lower cutting extremity a lateral projection or foot d, and reversible point having on its upper and lower surface an angular lug p, forming an oblique shoulder, which rests against the aforesaid foot on the cutter, as set forth.

**223,579. LUKE CHAPMAN,** Collinsville, Conn., assignor of one-half of his right to the Collins Company, same place. Plows. Jan. 13, 1880. Filed Nov. 20, 1879.

**Claim.** The share a and its flange a', the landside b and its flange b', and the mold-board c, with its flange-base c' and downwardly-projecting flange c'', to which the flanges of the other parts are bolted, and by which the parts of the plow are united without exposing the bolts upon its face, substantially as described.

**223,580. LUKE CHAPMAN,** Collinsville, Conn., assignor of one-half of his right to the Collins Company, same place. Plows. Jan. 13, 1880. Filed Nov. 20, 1879.

**Claim.** The combination of the mold-board a, with its flange a', the share b, with its flange b', the landside c, with its flange c', and the independent or separate flange-base d, supporting and connecting the other parts, substantially as shown and described.

**223,666. AUGUSTUS G. CHRISTMAN,** Sheridan, Pa. Plows. Jan. 20, 1880. Filed Oct. 28, 1879.

**Claim.** 1. The combination of a cast-iron share or point F'', of form shown and described, with an open-base hollow standard C, mold-board E, landside N', and loose shoe-piece M, for the purpose substantially as described.

2. The hollow standard C, with open base, in combination with the mold-board E, having its lower front end cut away at e, and adapted to receive the cast-iron share F'', landside N', and independent shoe-piece M, or the wrought-iron bar-share F', segment F, and landside N, substantially as shown and described.

3. The adjusting brace g, with transverse slot, in combination with standard C, colter block or pad f, and beam A, as shown and described.

4. The standard C, with arm d and seat k, in combination with the adjusting-brace g, fulcrum-block J, lock-block K, and beam A, substantially as shown and described.

5. The colter pad or block f, in combination with the adjusting-brace g, colter h i, and standard C, substantially as shown, and for the purpose described.

6. The adjustable handles B, in combination with the fulcrum-block J, lock-block K, and palms l'', for the purpose substantially as shown and described.

**223,987. JOHN B. BRUCE,** Sunny Dale, Kans., assignor of one-half of his right to William M. Summers, Cleopatra, Mo. Plows. Feb. 3, 1880. Filed June 30, 1879. **Claim.** In a plow, the casting b, constructed

with the standards  $b'$   $b''$ , top bar,  $b'''$  and horizontal flange  $b^4$ , and provided with the roller  $d$ , journaled in the lower end of the rear standard,  $b^2$ , the brace-bar  $f$ , secured in a horizontal position to the lower ends of standards  $b'$   $b''$ , and having its rear end extended and inclined upward and secured to the rear end of the beam  $a$ , and steadyng roller  $g$ , all arranged to operate substantially as and for the purposes set forth.

**224,750. GEORGE WATT,** Richmond, Va. Plows. Feb. 17, 1880. Filed Dec. 20, 1879.

Claim. 1. The combination of the plow-point having knob or ear  $a$  and lugs  $b$  with the plow-stock  $A$ , having cavity  $c$ , and the mold-board  $C$ , as shown and described, said ear being constructed to enter the cavity and project beneath the edge of the mold-board, as specified.

2. The combination of the colter section  $C'$ , having hook-bolt  $g$  and lug  $f'$ , with plow-stock  $A$ , having cavity  $h$  and a hole to receive said bolt, all as shown and described, for the purpose specified.

3. The plow-stock or bed  $A$ , beveled on its lower edge, also on the rear edge of its lateral flange and the landside at points, and provided with the cavities  $c$   $h$   $m$ , and holes whereby it is adapted for attachment of the point, mold-board, and sole, as specified.

4. The combination of the stock  $A$ , constructed as shown and described, and the point  $B$ , divided mold-board  $C$   $C'$ , and sole  $D$ , provided with the ears and hooks and the bolts for fastening the same, all constructed and arranged as shown and described, for the purpose of forming an improved plow.

**224,753. ROBERT W. WHITE-HURST,** Norfolk, Va. Plows. Feb. 17, 1880. Filed Dec. 10, 1879.

Claim. 1. In a plow, the herein-described means for securing the point or share and mold-board, consisting in a socket,  $e$ , on the outer face of the standard-foot, and an opening  $d$ , through the same in line with the inner surface of the landside part, and the share having the lug,  $c$ , projecting above its upper edge and adapted to fit within the socket and there be bolted, leaving the upper face of the lug flush with the outer face of the foot, and the mold-board having in its lower side a lug,  $f$ , provided with a bolt hole and adapted to fit in the opening  $d$  through the foot, on the lower side of which it is secured by a bolt entering the hole  $h$  in the landside part, as shown and described.

2. In a plow, the means for avoiding the exposure of bolt-heads, consisting in a socket,  $e$ , on the outer face of the standard-foot, and an opening,  $d$ , through the foot in line with the inner surface of the landside part, and the share having a lug,  $c$ , projecting above its upper edge and adapted to fit within the socket, leaving the upper face of the lug flush with the outer face of the foot, and the mold-board having on

its lower side a lug,  $f$ , provided with a bolt-hole and adapted to fit in the opening  $d$  through the foot, on the lower side of which it is secured by a bolt entering the hole  $h$  in the landside part of standard, and the landside  $E$ , secured to the standard so as to cover the bolt in the hole  $h$ , as shown and described.

**252,324. MYERS S. BETTICE,** Attica, Ind. Sod-Cutters. Mar. 9, 1880. Filed Dec. 11, 1879.

Claim. In combination with the share and mold-board, of a plow, the sod-cutter,  $F$ , provided with two threaded pins or prongs,  $a a$ , passing one through the share and the other through the mold-board, the plate or bar  $b$ , and nuts  $d$ , substantially as and for the purposes herein set forth.

**225,341. ARCHIBALD L. CHUBB,** Grand Rapids, Mich. Plows. May 9, 1880. Filed July 10, 1879.

Claim. 1. In a plow, the colter-standard  $C$ , let into a groove in the landside and secured therein flush with the landside, in combination with the colter  $B$ , secured to such standard at its upper end, and resting at its lower end in a groove,  $d$ , formed in the plow point, substantially as described and shown.

2. In a plow, the combination, with the landside and mold-board and the handles  $F$ , of the spreader-bar  $E$ , bracing the landside and mold-board apart and passing through the handles which are pivoted thereon, and the bracket  $H$ , having slot  $g$  and bolt  $h$ , for adjusting the handles vertically, substantially as described and shown.

**227,406. LOUIS BEGON,** San Francisco, Cal. Central Draft for Plows. May 11, 1880. Filed Dec. 27, 1879.

Claim. 1. In a plow having the mold-board united in a rigid manner to a main beam, the supplemental and independent beam  $G$ , with its arm  $H$ , said arm being adapted to apply the draft power directly in a line approximating the center of resistance, while the draft-beam is allowed a free movement about that point and accommodates itself to unequal resistances, substantially as herein described.

2. In a plow having the mold-board rigidly united to a main beam and provided with a supplemental draft-beam and arm, whereby the power may be applied in the line of the center of resistance, while the draft-beam is allowed to accommodate itself to unequal resistances, the support and ring  $E$ , movable and adjustable at the end of the stationary beam, whereby the deviations of the plow consequent to occasional and equal resistances are limited and corrected, substantially as herein described.

**227,606. SAM'L. L. ALLEN,** Cinnaminson, N. J. Plows. May 18, 1880. Filed July 3, 1879.

Claim. 1. A mold-board for plows, consisting of a series of arms  $a$ , cast or formed integral with each other, and having the same shape

as the corresponding parts of a solid mold-board the slots between the arms following the course of the furrow-slice and being unobstructed from end to end, and the center lines of all the arms being parallel or concentric with each other, all substantially as set forth.

**2.** The within-described mold-board or landside of a plow, the same consisting of arms *a*, integral with each other, and connected by concave bridge-pieces *b*, whereby the slots between the arms are unobstructed from end to end of the landside or mold-board, all substantially as specified.

**3.** The combination of the beam *B*, the flanged standard *A*, having a slot *p*, the projection *h*, having a slot *q*, the vertical bolt *n*, passing through the beam and standard, and the transverse bolt *s*, passing through the beam and through the projection *h*, as set forth.

**4.** The combination of the recessed plate *t*, the block *J*, having a yoke or lugs and recesses, as described, the link *y*, having lugs adapted to recesses on the block, and the link *x*, wider at one part than another, as set forth.

**227,741. JOHN W. DAVIS**, Elvaston, Ill. Cultivators. May 18, 1880. Filed Apr. 3, 1879.

The plow is horizontally pivoted near its base and has a break-pin formed of a continuous wire and wound upon a reel attached to the beam. The standard has a rounded side, and the landside a concave seat and slot, permitting the point to be turned on or off land. A reversible plow used as a shovel or turn plow.

Claim. **1.** In combination with a plow-beam and standard a pivoted carrying-block *E*, and a continuous break-pin *H*, in the form of a wire, having its surplus held by a suitable holder *S*, attached to the plow-frame, substantially as set forth.

**2.** In combination with a plow-beam and standard, the pivoted block *E*, having an oval bearing, the landside-bar *C*, having a concave bearing and provided with a horizontal slot, the bolt *F*, and the plows *D*, having the diverse ends *K L*, substantially as set forth.

**3.** In combination with a plow having reversible diverse ends, a separate fixed landside-bar arranged to act therewith, substantially as set forth.

**227,991. JACOB P. PATERY**, Dunnigan, Cal. Plow Share-Fasteners. May 25, 1880. Filed Mar. 11, 1880.

Claim. The mold-board *A*, having lug *f*, share *C*, provided with lugs *b d d*, and landside *B*, provided with a recess and flange *a*, in combination with brace *D'*, having slot *c*, and compound lever *E F*, having hook *e*, all constructed and operated as described.

**228,813. JOSEPH HAFNER**, Springville, Cal. Plows. June 15, 1880. Filed Mar. 29, 1880.

A wheel upon a pivoted lever may be turned down to elevate the heel of the plow to any de-

sired height, and held in position by a spring-pawl.

Claim. The landside *E*, with its slot *d*, in combination with the shipper-lever *G*, guide *e*, and wheel *H*, as and for the purpose set forth.

**229,217. HARRY WIARD and WILLIAM R. BULLOCK**, Syracuse, N. Y. Plows. June 22, 1880. Filed Apr. 12, 1880.

A conical standard-head slotted to allow adjustment to or from land. Colter and wheel-standards, with devices to turn them in their sockets.

Claim. **1.** The combination, with the flanged beam *a*, of the clamps *d* and conically-formed standard *b*, for uniting the beam and standard together, substantially as and for the purposes specified.

**2.** In combination, the grooved standard *e*, as specified, the eyebolt *f*, having a spline fitting the grooved standard, the saddle *g*, plate *k*, and washer *i*, constructed and arranged substantially as and for the purposes specified.

**229,367. JOHN L. BRINLY**, Louisville, Ky. Plows. June 29, 1880. Filed Apr. 21, 1880.

Claim. In a plow, the combination, with the foot *C* and point *E*, of the landside *D*, having at its front end an inwardly-projecting lug *l*, fitting between said foot and the shoulder of said point, as shown and described, for the purpose specified.

**229,954. JEROME I. CASE**, Racine, Wis., assignor to the J. I. Case Plow Company, same place. Plows. July 13, 1880. Filed Apr. 5, 1880.

Claim. **1.** In a plow, the extension *D'*, adapted to brace the beam *D*, in combination with the brace *G*, to which the beam is attached, and adapted to be laterally adjusted thereon, substantially as and for the purpose specified.

**2.** In combination with the mold-board and landside of a plow and a curved beam having an eye by which it is made laterally adjustable on the brace *G*, the extension *D'*, having transverse slots through which bolts pass to secure it to the mold-board, substantially as and for the purpose specified.

**231,308. JOSEPH S. GUM**, Fowler, Ind. Plows. Aug. 17, 1880. Filed Aug. 19, 1879.

Claim. **1.** In a plow constructed substantially as described, the landside *B*, having colter *C* and notch *D*, its upper portion *E*, being curved to form an upward continuation of the mold-board, as set forth.

**2.** The combination of the mold-board having the extended cutting portion *A*, landside *B*, having notch *D*, plate *F*, forming a continuation of the landside and curved at *G* toward the mold-board, and the adjustable furrow-wheel *K*, substantially as and for the purposes set forth.

**231,778. JOSEPH ELCOCK**, Mechanicsburg, Pa. Plows. Aug. 31, 1880. Filed Feb. 14, 1880.

Claim. The combination, with the mold-board formed with a web *b*, uniting the mold-board with the landside, of the plow-beam, a draft-plate having its rear end interposed between said web and the under side of the beam, a strengthening plate or casting *L*, receiving and holding a bolt *Z*, of the colter-guard or holder *K'* and applied to the upper side of the beam, and the two bolts *E* and *F* passing through the plate *L*, plow-beam, draft-plate, and colter-web, the first-named bolt being extended down into the sole of the plowshare and the latter-named bolt being connected with a brace-rod extended back to the landside handle of the plow, all of said members being constructed and organized substantially as herein set forth.

**231,810. JAMES L. JUDD**, Syracuse, N. Y., assignor of one-half of his right to Harry Wiard, same place. Plows. Aug. 31, 1880. Filed June 26, 1880.

Claim. 1. In a plow-frame or seat, the rib *a*, formed on the seat along the line of junction of the superimposed parts, as and for the purposes specified.

2. The combination of the ribs *a* and chamfered edges *b* in plow-castings, substantially as and for the purposes specified.

**231,913. THOMAS F. JONES**, Aberdeen, Ohio, assignor of one-half of his right to T. K. Ball and Son, Maysville, Ky. Plows. Sep. 7, 1880. Filed Feb. 28, 1880.

Claim. 1. The point *e*, having its front half bent at a sharp right angle, forming a horizontal share and a colter, which also forms the forward section of the landside, substantially as shown and described.

2. The combination of the point *e*, the angular block *B*, forming the middle section of the landside, the standard *A*, having heel *B'* and bracket *a*, and the plate *b*, substantially as shown and described.

**231,930. NORMAN G. PINNEY**, New Hudson, Mich. Plows. Sep. 7, 1880. Filed Feb. 2, 1880.

Claim. 1. In combination with a plow, a supplementary vertical standard, *G*, the lower end of which is secured upon the inner face of the landside for the purpose of furnishing a means of securing a jointer or colter-arm, substantially as described.

2. In combination with a plow provided with a supplementary standard, as described, the plate *H* and clamp *K*, for the purpose of adjustably securing the arm *I* to said supplemental standard, substantially as specified.

3. In combination with a plow provided with a supplemental standard, *G*, horizontally projecting arm, *I*, and devices, substantially as described, for changing at will the pitch of the arm and to secure a vertical and horizontal

adjustment of the same, substantially as set forth.

**232,530. ELIHU MAY**, Lincoln County, Miss. Plows. Sep. 21, 1880. Filed July 22, 1880.

A draft-bar pivoted nearest one end, and with a hook upon each end, giving draft connection at or removal from the point of the beam.

Claim. The pivoted draft-rod *R*, having a hook formed on each end, in combination with the plow beam *A*, and a bolt for holding the rod, in either position into which it may be turned, substantially as shown and described.

**233,795. NICHOLAS C. ORRICK**, Canton, Miss. Plows. Oct. 26, 1880. Filed July 14, 1880.

Claim. The combination of the standard *A*, pivoted brace *B*, having convex notched plate *D*, notched concave flanges *F*, secured upon the under side of the beam, and the bolt and nut, *E G*, substantially as and for the purpose set forth.

**233,827. DAVID WOLF**, Avon, Pa. Plows. Oct. 26, 1880. Filed May 4, 1880.

Claim. 1. A plow, the combination, with a mold-board having a vertical groove, and a standard having a front offset formed above and disconnected from the groove, of a flat-sided bolt whose lower portion fits in said groove, and whose upper portion bears laterally against said offset, the central portion of the bolt being located in the space formed between the groove and offset, substantially as set forth.

2. In a plow, the combination, with a mold-board provided with a vertical groove, and a standard provided with a front offset, of a flat-sided bolt which fits in said groove and seats against said offset, and a cutter provided with a lateral lug on its inner side, which embraces that portion of said bolt which is located between the groove and offset, substantially as set forth.

3. In a plow, the combination, with a loop embracing a plow-handle, of a bolt whose eye fits on the forward cross-bar of the loop, said bolt passing up through the plow beam and adapted to laterally adjust the latter by sliding its eye on said loop bar, substantially as set forth.

4. In a plow, the combination, with the double-point having a vertical sides formed straight throughout their entire length, and the lateral stud formed on the landside-bar, of the bolt which passes through the stud and is provided with a nut whose lower portion depends below the stud and has lateral bearing against the plow point, substantially as set forth.

**234,008. HENRY F. EDEY**, Bridgetown, Island of Barbadoes. Plows. Nov. 2, 1880. Filed May 21, 1880.

Claim. 1. A plow containing the following elements, viz: A beam *A*, supported upon wheels *M* at the front end, a standard, *C*, at

the rear end, a rocking rod F, carrying a share or point, E, and a lever connected at one end with the wheels M and at the other end with the rocking rod F, to give the motion thereto, substantially as herein shown and described.

**2.** In a plow, the combination, with the beam A and the standard C, of the rocking share or point E, the rod F, provided with the arms G H, the lever J, the bail K, and the crank-wheels M, substantially as herein shown and described, whereby the share or point is made to rock, as set forth.

**3.** In a plow provided with a rocking share or point, operated by crank-wheels, the combination, with the beam A and the wheel-shaft N, of the bearing bar O, having arm P, the curved clamp Q, and the set-screw R, substantially as herein shown and described, for connecting the crank-wheels M with the plow beam A, as set forth.

**4.** In a plow, the combination, with the lever J and the reciprocating rod F, that carries the share or point E, of the arms G H, substantially as herein shown and described, whereby a reciprocating movement is given to the rod F by the vibratory movement of the lever J, as set forth.

**234,017. NATHANIEL H. FOSTER,**  
St. Joseph, La. Plows. Nov. 2, 1880.  
Filed June 19, 1879.

Claim. In a plow or cultivator, the combination of the main beam *a*, having the fixed standard *d*, with the oblique rear branch beam *f*, having the rectangular mortises *h*, formed parallel with the line of draft, the adjustable standard *g*, arranged to fit in either of said mortises, and the cross-brace *m*, substantially as shown and described.

**234,920. THOMAS MEIKLE,** Louisville, Ky. Plows. Nov. 30, 1880. Filed Oct. 4, 1880.

Claim. A plow combining in its construction the mold-board and landside, cut away to form a recess between their upper edges, and a shin-piece having a tongue or projection, which is received between the mold-board and landside, and downwardly-extending flange, which lies in a recess formed between the landside and share, with which it is flush, and confined by a single bolt, substantially as set forth.

**235,341. DANIEL CONDO,** East Germantown, Ind. Plows. Dec. 14, 1880. Filed July 15, 1880.

Claim. In combination with a metallic sheath E, having branches I I', terminating, respectively, with slotted head-blocks J j J' j', for supporting the swiveled plow-beam A, the lateral foot F and lug L, attached, respectively, to the land-bar G and mold-board H, in the manner described.

**235,369. JOSEPH MASSON,** St. Louis, Mo. Plows. Dec. 14, 1880. Filed Sep. 24, 1880.  
A crank-screw running in a rigid support to

vertically adjust the rear end of the plow-beam.

Claim. The combination of the slotted heel of a plow-beam, a top plate having a semi-spherical cavity in the under side thereof, a vertical brace connected with the landside-plate and passing through a slot in the beam, a screw-threaded horizontal brace, and a screw located above the beam and provided with a crank-handle, substantially as and for the purpose described.

**235,639. RICHMOND C. MERITT,**  
De Witt, Mich., assignor of two-thirds to John E. Jayne, same place. Plows. Dec. 21, 1880. Filed June 25, 1880.

Claim. The combination, with the plow-beam A and perforated handles B B, of the slotted segment C, having bifurcated ear *c* and side flanges *b b*, slotted segment D, provided with the bifurcated ear *c'* and adapted to slide between the flanges of the segment C, the slots in the segments registering with each other, and bolts *e h*, whereby the end of the plow-beam may be adjusted both laterally and vertically and the device be attached to plow-handles of different widths between them, substantially as described.

**236,463. GEORGE E. SMITH,** Racine, Wis., assignor of four-fifths to William S. Buffham and Thomas Dickenson, same place. Plows. Jan. 11, 1881. Filed Sep. 21, 1880.

Claim. **1.** The standard having toothed segment O, combined with handle H and clip N, provided with toothed lips and retaining-bolt *g*, as set forth.

**2.** The standard having toothed segments O, the handles H, clips N, and bolts, as described, in combination with the slotted strut M, its retaining-screw, and the plow-beam, as set forth.

**3.** The chilled cast-metal mold-board having the semi-spherical hollow boss *a* cast thereon near the landside end of the mold-board, as set forth.

**4.** The combination of the mold-board having hemispherical hollow boss *a* cast thereon with the standard having recess, as *B<sup>2</sup>*, to receive the boss on mold-board, and lug *d*, to retain the bolt, and the connecting T-bolt *x*, extending from the boss to the lug, as set forth.

**5.** The chilled mold-board B, having the semi-spherical boss *a* and the semi-spherical socket or cup *b* cast thereon, substantially as shown and described, and for the purpose set forth.

**6.** The combination, with the beam and draft-rod, of the clevis described, consisting of a back plate having conical seat, clutch-plate having conical projections, and the sliding bar, the parts being held in frictional contact by a screw-bolt, as set forth.

**236,828. EGESIPPE D. MELANCON** and JNO. H. AYRAND, Sr., Paincourtville, La. Plows. Jan. 18, 1881. Filed July 14, 1880.

**Claim.** The standard D, having the projecting cap-plate E, and end-threaded arm I, in combination with the beam F, bolt G, screw K, and nuts H J, as and for the purpose specified.

**237,631. NICHOLAS SWENSON, JOHN S. LINDQUIST and CHRISTIAN HEGLUND,** Swedeburg, Neb.

Plows. Feb. 8, 1881. Filed Sep. 3, 1880.

**Claim.** In a mold-board plow, the centrally appointed share F, having the toe-point c in the center of the furrow, the beam E, curved over the center of the plow the rolling colter G' and arm g, curved outward from the standard to act in conjunction with the fixed cutter G, upon the landside and having compound adjustability all constructed and combined as and for the purposes set forth.

**239,918. CHARLES BATES,** Sedalia, Mo. Plows. Apr. 12, 1881. Filed May 31, 1880.

**Claim. 1.** The plow B, provided with a standard having braces L and arm K extending therefrom the former of which are provided with slots to receive bolts to clamp said arms L to the plow beam at any desired height and the latter provided with a graduate or scale as and for the purpose specified.

**2.** The combination of the plow provided with a graduated standard and arms to serve as braces extending therefrom the beam A, handle C, and loop I, all arranged as and for the purpose set forth.

**243,576. PETER KESSLER,** Baltimore Md. Plows. June 28, 1881. Filed May 2, 1881.

The plow is adapted to receive reversible shares of different lengths.

**Claim.** The combination of a mold-board, having a cut-away at the heel part extending from the lower curved line of the mold-board, inward, and a reversible combined share and point the reversed end of which enters the cut-away whereby reversible combined parts may have each cutting edge of the share longer or shorter as desired as set forth.

**244,787. NATHANIAL S. BARGER,** Hampton, Iowa. Plows. July 26, 1881. Filed May 20, 1881.

**Claim. 1.** The combination in a plow, of the short landside bar B, and two wheels E E' yoked together and attached pivotally to the under side of the mold-board D, substantially as and for the purpose described.

**2.** The combination of the mold-board D, bracket f on its under side yoke F, pivoted to the bracket the two wheels E E' and the short landside bar B of the plow, substantially as and for the purpose described.

**3.** The plow provided with wheels E E' having beveled edges and arranged on the under side of the mold-board and supported by an arched pivoted yoke F, and a bracket f and revolving on inclined axles c c' set to cause the

beveled wheels to fit the angle of the landside and furrow substantially as described.

**4.** The pivoted yoke carrying wheels and scrapers and applied beneath the mold board, of the plow, substantially as described.

**5.** The inclined shield H, applied on the rear under side of the mold board and to the standard of the beam and extending from near the rear upper portion of the mold board diagonally toward the landside and covering the wheels above their bearing edges substantially as described.

**245,429. ALBERT BALL,** Canton, Ohio. Plows. Aug. 9, 1881. Filed Dec. 8, 1880.

**Claim. 1.** In a plow the combination of the following elements; a stock A, having the wall  $\alpha$ , the rabbet  $\alpha'$  and the recess  $\alpha^2$  the point B, seated in the rabbet  $\alpha'$  and in the recess  $\alpha^2$  to inclose the end of the stock, and having the recess  $\beta$ , on its landside and the part C, seated in said recess  $\beta$  and extending both above and below said stock A, whereby it operates both as a cutter and landside for the plow as set forth.

**2.** The combination of the following elements namely; the stock A, having the rabbet  $\alpha'$ , the vertical wall  $\alpha$ , and the recess  $\alpha^2$  extending from the top to the bottom of the stock, the point B, which incloses the front end of the stock and the part C, secured to the landside of the plow and constructed to extend from the top to the bottom of the stock and to operate both as cutter and as landside as set forth.

**3.** In a plow, the combination, with the point B, and the cutter C, of the stock A, formed with the rabbet  $\alpha'$ , the vertical wall  $\alpha$ , and the recess  $\alpha^2$  extending from the top to the bottom of the stock on the landside whereby the stock is adapted to be interchangeably used with said point B and cutter C, when formed in one piece and when they are formed separately, as set forth.

**245,824. JOHN N. HOAGLAND, HENRY L. CUMMING, and FRANK G. TALLMAN,** Castile, N. Y. Plows. Aug. 16, 1881. Filed Aug. 6, 1880.

**Claim. 1.** In a plow, the combination, with the standard A, having a front arm, B, and a rear arm, C, of a beam, G, secured to adjustably in both arms of the standard by fastening devices j m, and a pivot bolt, n, connecting the standard and beam between the front and rear fastenings, j m, and two intersecting sockets, o p, formed in the beam G, near its front end, for the reception of the wheel-standard, whereby the plow is readily adjusted for two or three horses, substantially as set forth.

**2.** The combination of the wheel-standard I and the beam G, provided with the double inclined notches o and p, substantially as shown and described.

**247,110. ARMAND RICHARD,** Grand Coteau, La. Plows. Sep. 13, 1881. Filed June 27, 1881.

**Claim. 1.** The combination, with the share B, provided with the perforated ears b b and rod d, and a single-hinged mold board, D, having lugs f f, of the hinged yoke E, screw-rod E, having its head swiveled in the yoke, and screw-threaded collar G, pivoted to the landside, substantially as described, and for the purpose set forth.

**2.** The combination, with the share B, provided with a groove, h", of a cutting-blade provided with a flange, h, adapted to be inserted and adjusted in said groove, substantially as described, and for the purpose set forth.

**3.** The cutting-blade I, having end flanges projecting in opposite directions from the blade, one of said flanges projecting in the rear of the blade, and provided with notches h' on its lower edge, substantially as described, and for the purpose set forth.

**4.** The combination, with the blade H, having end flanges, h h, one of which projects in rear of the blade, of the share B, having groove h", with teeth h', substantially as described, and for the purpose set forth.

**5.** The combination, with the blade H, having the end flanges, h h, and notches h', and share B, having groove h", of the clamp J, provided with teeth m, substantially as described, and for the purpose set forth.

**252,139. JOHN S. ROBINSON and EDSON C. ROBINSON,** Canandaigua, N. Y. Plows. Jan. 10, 1882. Filed Jan. 27, 1881.

**Claim. 1.** The combination of the double-faced jointer standard and the brace J, substantially as described.

**2.** The angular or double-faced and double-slotted jointer-standard E, in combination with the bolt q, passing through the plow-beam, substantially as described.

**3.** The combination of the plow-standard, provided with the diamond-shaped rib g, and the point D, having on its under side the corresponding diamond-shaped groove h, substantially as and for the purpose set forth.

**252,585. FRANZ NITSCHMANN,** Flatonia, Tex., assignor to Franklin P. Walters and Charles A. Arnim, same place. Plows. Jan. 17, 1882. Filed June 18, 1881.

**Claim.** The combination, with the adjustable standard-iron A and the handles, of the transverse bar G, clamp or hook-bolt H, and the pivoted adjustable brace L, connected to the furrow-bar of said iron, substantially as specified.

**252,972. NEWELL SANDERS,** Chattanooga, Tenn. Plows. Jan. 31, 1882. Filed Oct. 6, 1880.

**- Claim. 1.** The landside A, having the forward notch, a, and the upward extension, B, the latter having a sharp cutting-edge, and curved to be flush with the mold-board and share, and provided with the ear b, substantially as shown and described.

**2.** The landside A and colter extension B,

as described, formed in one piece, in combination with the mold-board E, share C, and standard D, substantially as shown and described.

**253,408. EDMUND D. MEAGHER,** South Bend, Ind. Plows. Feb. 7, 1882. Filed July 19, 1881.

**Claim. 1.** A reversible plow-point having symmetrical upper and lower faces, upper and lower flanges, and a connecting web at the rear edge adapted to the foot of the standard, substantially as described.

**2.** A plow-point removable and reversible, having symmetrical upper and lower faces, the thickened central portion adapted to rest against the notch in the tip of the foot, and the connecting web, substantially as described.

**3.** The wedge-shaped plow-point, wide at the front and tapering to the rear, having the thickened central portion, and web adapted to the foot of the plow-standard and to the wing, substantially as described.

**4.** In combination with the described plow-point, having upper and lower flanges and connecting web i, the hooked rod extending through the brace 8 and adapted to draw back the point upon its bearings, substantially as described.

**5.** The combination of the plow-point, having upper and lower flanges, with the foot of the standard having inclined upper and lower faces and side recessed, and shoulder and notch in the tip thereof, all adapted to furnish solid bearing for the point, substantially as described.

**6.** The reversible wing C, having the inclined bevels on opposite faces and ends tapering from upper to lower edge adapted to the recessed reversible point B, and in combination therewith, substantially as described.

**7.** The combination, in a plow, of a supporting landside-wheel and an elastic landside, substantially as described.

**8.** The combination, with a supporting and landside-wheel adapted to be vertically adjusted, of a landside H, having a rear portion partially overlapping the wheel and normally in a plane outside the vertical face of the wheel, as described.

**9.** The landside H, having the rear portion elastic and partially overlapping the wheel and the forward portion covering the recess in the point B, the parts being combined as described.

**10.** In combination with the coupling E, having arms e e, and the wheel D, the described bearing, consisting of the cones G and F, and the connecting-bolt adapted to draw upon both cones, substantially as described.

**11.** The combination of the wheel having the annular flange, the cones G and F, coupling E, and the connecting-bolt, substantially as described.

**254,533. AUGUSTUS G. CHRISTMAN,** Reading, Pa. Plows. Mar. 7, 1882. Filed June 16, 1881.

**Claim. 1.** In a plow, the combination, with the beam A, of the double standards B'

$B^2$ , cast with and forming an integral part of the mold-board  $B$ , said mold-board being provided with a seat for the point  $C$ , landside  $F$ , and special shoe  $D$ , and with a reverse face having an ear  $B^3$ , and a pad  $B^4$ , forming fulcrum-points for the handles  $J J'$ , substantially as shown, and for the purpose set forth.

2. The combination, with the double standard mold-board  $B B' B^2$ , of the straight jointer-bar  $G$ , secured by bolts  $g g'$  to the stands  $B' B^2$ , said bar being further provided with a lug  $b^3$ , adapted to engage a recess  $b^4$ , in the standard  $B'$ , substantially as shown, and for the purpose specified.

3. The straight jointer-bar  $G$ , provided with jointer-head  $G'$ , in combination with the double-standard mold-board  $B B' B^2$ , said jointer-bar being attached to the standards  $B' B^2$  by bolts  $g g'$ , lug  $b^3$ , and recess  $b^4$ , substantially as shown, and for the purpose described.

4. The caster-wheel pedestal  $Q$ , having a vertical guide-recess  $Q^1$ , oblong bolt-slot  $q$ , fulcrum-foot  $Q'$ , and adjustable foot  $Q^2$ , provided with circumferential slot  $R$ , in combination with the bram  $A$ , bolt  $R'$ , clevis  $A^3$ , bolt  $a'$ , caster-wheel  $M$ , and sliding head  $P$ , having bolt  $P'$ , and shaft  $O$ , substantially as shown, and for the purpose herein set forth.

**254,634. JOSEPH GEORGE**, Fayetteville, Ark. Plows. Mar. 7, 1882. Filed Aug. 3, 1881.

Claim. 1. The combination, with the share  $a$  and share-bar  $b$ , made in one piece, and mold-board  $k$ , of the landside  $c$ , having the wing  $h$ , and a plow standard secured to the share-bar and landside, and abutting against the wing  $h$ , substantially as described.

2. The combination of the share  $a$  and share-bar  $b$ , made in one piece, mold-board  $k$ , landside  $c$ , provided with the wing  $h$ , and boss  $u$ , having a central hole, standard  $u$ , provided with a circular recess  $x$ , having a central hole, and beam  $t$ , substantially as described, and for the purpose set forth.

**254,734. JAMES VAN DEGRIFT**, Princeton, Ill. Plows. Mar. 7, 1882. Filed Dec. 24, 1881.

Claim. In a plow, the combination of the bearing-frame  $a b f$ , substantially as described, with the wheels  $c$ ,  $d$ , and  $e$ , mounted and arranged substantially as described, and for the purpose set forth.

**255,370. GEORGE WIARD**, Batavia, N. Y., assignor to the Wiard Plow Company, same place. Plows. Mar. 21, 1882. Filed Aug. 24, 1881.

Claim. 1. The combination, with a plow-beam, of a caster-wheel journaled in a bearing  $G$ , provided with one or more stops,  $h$ , a pivot bolt  $g$ , a sleeve,  $H$ , surrounding the bolt  $g$  and secured to the beam, and one or more recesses  $h'$ , formed in the sleeve  $H$ , substantially as set forth.

2. The combination, with a standard,  $C$ , constructed with a lateral bend or offset,  $m$ ,

whereby the rear portion of the standard is located nearer the mold-board than its front portion, of a beam,  $E$ , secured to the standard in front of the bend  $m$ , and handles  $N$ , secured to the standard in the rear of the bend  $m$ , substantially as set forth.

**255,898. AUGUSTUS C. TAYLOR**, San Francisco, Cal. VineYard-Plows. Apr. 4, 1882. Filed Dec. 19, 1881.

Claim. The movable portion  $G$  of the mold-board, mounted on a vertical pivot and moving in a horizontal arc, in combination with the lower fixed portion,  $F$ , and brace  $I$ , all constructed, arranged, and operated as set forth.

**256,750. FREMONT SIMONDS**, Grand Island, N. Y. Plows. Apr. 18, 1882. Filed June 1, 1881.

Claim. 1. A mold-board provided with an inwardly-extending flange,  $h$ , at the lower edge, in combination with a shoe,  $a'$ , secured detachably to the under side of said flange, to extend below the lower edge of the mold-board, as and for the purpose set forth.

2. A plow having a mold-board and landside, in combination with the handles pivoted one to the mold-board and the other to the landside, and with angle-plates  $I$  and an intermediate plate  $L$ , bolted to both handles, as set forth.

**257,241. MILTON ROSS**, San Jose, Cal. Plows. May 2, 1882. Filed Aug. 5, 1881.

Claim. 1. The plow-beam  $A$ , with its slotted arm  $B$ , in combination with the crank  $G$ , standards  $F$  and  $K$ , landside  $C$ , beam adjusting plate  $I$ , and handle adjusting plate  $J$ , secured thereto, substantially as herein set forth.

2. The mold-board  $D$ , with its extension  $d$ , in combination with the slotted plates  $I$  and  $J$  and plow beam  $A$ , with its slotted arm  $B$ , said beam being adapted to shift upon the crank  $G$ , substantially as herein described.

3. The mold-board  $D$ , with its extension  $d$ , in combination with the slotted plates  $J$  and handle-stem  $M$ , pivoted to the cross brace  $E$  and adapted to travel on the slotted plate  $J$ , substantially as described.

**258,115. ADDISON F. PUREFOY**, Wake Forest, N. C. Plows. May 16, 1882. Filed Dec. 5, 1881.

Claim. 1. A plow beam composed of a metal plate bent at its lower edge to form a flange, and provided with the angular slot  $a^2$  and arc  $G$ , substantially as described.

2. The combination of a plow beam, a standard attached to said beam by a pivot-bolt and clamp, as represented by  $E F$ , a toothed segment,  $H$ , fastened to said standard, and a stop-piece,  $I$ , for engaging the teeth of said segment, substantially as described.

3. The combination, with the plow beam and standard pivoted thereto, of a toothed segment fastened to said standard and a separate stop-piece,  $I$ , adapted both to engage the teeth on said segment and to clamp the segment against

the side of the beam, substantially as described.

**4.** The combination, with the plow beam provided with the arc-shaped recess G, of the plow standard attached to said beam by a pivot-bolt and clamp, E F, the part f of said clamp working in said recess, substantially as described.

**5.** The means described for securing a colter, subsoiler, harrow, or other attachment to a plow standard, comprising a bent attaching-plate, k, adapted to embrace the standard, a pin to enter holes in the said standard, and a double bolt for binding the whole together, substantially as described.

**6.** A depth-regulator comprising a shoe and an upright with oblique grooves, substantially as described.

**7.** The combination, with a plow and plow-standard, of a harrow attachment, K<sup>2</sup>, having the body l oblique to the attaching-plate k and secured in front of the standard, substantially as shown and described, so that the harrow-teeth are above and behind the point of the plow, substantially as described.

**8.** The combination, with a plow and plow-standard, of a harrow attachment, substantially as shown and described, secured in front of the plow standard above the plow, so as to be vertically adjustable on said standard, as set forth.

**9.** The combination, with a flanged metal plate provided with notches in the flange, of the teeth, grooved and fitting within said notches, and bolts for holding the teeth in position, substantially as described.

**10.** The combination, with a plow beam, of a vertical toothed plate adjustably connected therewith, so as to be capable of a limited sliding movement lengthwise of said beam, and a detachable clevis provided with a toothed cross bar, substantially as described.

**11.** A plow beam having at the end an angular slot for securing the clevis, in combination with a plate, also slotted and capable of a limited movement lengthwise of the beam, so as to lock the clevis, substantially as described.

**12.** A clevis formed of a metal bar, bent and twisted, as shown, and provided with a toothed cross-bar, substantially as described.

**13.** The combination of a plow beam made of a metal plate, bent at the bottom to form a flange the vertical toothed plate bolted to the upright part of the beam, with its lower edge resting on said flange, and the clevis provided with a toothed cross-bar, said clevis being held in a slot in the beam, and said vertical toothed plate being capable of movement lengthwise of the beam, substantially as described.

**259,659. ALBERT BALL**, Canton, Ohio. Plows June 20, 1882. Filed Dec. 17, 1881.

The plow-beam can be attached to either side of the bracket, and thus change the center of draft.

Claim. In a plow, the frame A, having T-shaped bracket B at its rear, in combination with the adjustable plow-beam C, connected

thereto, substantially as and for the purpose set forth.

**260,072. LEWIS B. WHITE**, Norfolk, Va. Plows. June 27, 1882. Filed Mar. 22, 1880.

Claim. **1.** In a plow, the improved standard or stem a, having its lower end a<sup>3</sup>, reduced on its outer side to provide a shoulder a<sup>4</sup>, and having the rear extended base a<sup>5</sup>, the rear arch-brace a<sup>11</sup>, and suitable bolt-holes, all arranged and adapted to be used either for a single or a double turn-plow, substantially as set forth.

**2.** The combination, with the foot b, having the socket b<sup>6</sup> in its wing b<sup>2</sup>, of the share c, having the projection c<sup>4</sup>, T-slot c<sup>5</sup>, and the rib or flange c<sup>6</sup>, substantially as set forth.

**3.** The combination, with the foot b, constructed with the recesses b<sup>6</sup> b<sup>5</sup> and projection b<sup>9</sup>, of the share c, having the projection c<sup>4</sup> and T-slot c<sup>5</sup>, and provided with the flange c<sup>7</sup>, having hooked end c<sup>8</sup>, substantially as set forth.

**4.** The combination, with the foot b, constructed with the recess b<sup>5</sup>, of the mold-board d, abutted against the share c, and having the projection d<sup>4</sup> and T-slot d<sup>5</sup>, substantially as set forth.

**5.** The double-winged casting or foot b, composed of the landside-wing b', having mortise b<sup>3</sup> on its outer side to receive the landside c, and the mold-board wing b<sup>2</sup>, furnished with recesses or sockets b<sup>5</sup> b<sup>6</sup>, substantially as and for the purposes as set forth.

**6.** In a standard for plows, the improved foot b, formed of the landside-wing b', having the inner under flange b<sup>4</sup>, and the outer side mortise b<sup>3</sup>, to receive the landside C and the mold-board wing b<sup>2</sup>, and cross-brace b<sup>8</sup>, substantially as set forth.

**7.** In a plow, the herein-described means for securing the mold-board, consisting in a socket b<sup>9</sup>, on the standard-foot and the mold-board d, having on its under side a slotted projection d<sup>4</sup>, to receive the bolt-head, and adapted to fit in the socket b<sup>5</sup>, and there be bolted to the foot, covering the socket and the bolt-head, substantially as and for the purposes set forth.

**8.** In a plow, the herein-described means for securing the share, consisting of the foot b, having the socket b<sup>6</sup>, and the share c, having a projection c<sup>4</sup>, to fit in the socket b<sup>5</sup> in the standard-foot, and having the slot c<sup>5</sup>, the share covering the bolt-head, as set forth.

**9.** In a plow-standard, a removable foot constructed with a longitudinal side recess or seat b<sup>3</sup>, to receive the landside C, and a wearing-surface between the said seat and the upper edge of said foot, substantially as shown.

**10.** In a plow, the standard a, provided with an abutting shoulder a<sup>4</sup>, on its landside, and shaped to fit in the removable foot b, and provided with a base or support a<sup>5</sup>, extended to the rear and adapted for either a single mold-board plow or for the sweeps and double mold-board of a cultivating-plow, substantially as set forth.

**11.** The combination of the removable foot

*b*, having wings *b' b'*, brace *b*, having one end made fast to the wing *b'*, near the lower edge of the latter, and its other end inclined upward and extended to and made fast to wing *b'*, and the stem *a*, having its lower end formed to slide into the angle between the wings *b' b'*, the said brace *b* being arranged to permit the easy insertion or removal of the stem *a*, as shown in Figs. 14 and 15, substantially as set forth.

**260,772. CHARLES F. MOCK,** Louisville, Ky. Plows. July 11, 1882. Filed Apr. 23, 1880.

Claim. In an adjustable plow, the standard C, made of sheet or plate metal, as shown and described, and adapted to receive the point, mold-board, and landside, in combination with the head-piece D, the pivot-pin *a*, to connect the standard and head-piece, the adjustable beam A, angular slotted cross-bar J, pivot-bolts *b b*, and handles B, constructed and arranged to operate substantially as specified.

**260,785. JOHN QUIN,** Wakeman, Ohio. Plows. July 11, 1882. Filed May 12, 1881. Renewed May 10, 1882.

Claim. The combination, with the short-beam I, secured to the landside and provided with the arm I', having a row of vertical holes, and angular arm F, provided with holes *a b*, of the beam B, provided with the vertical pin *d* and the end perforated plate *n*, and plate K, provided with adjusting-holes, substantially as described, and for the purpose set forth.

**261,528. JAMES M. BUCHANAN,** Indianapolis, Ind. Plows. July 25, 1882. Filed Oct. 21, 1881.

Claim. In a plow, the combination, with the curved beam B, of the handles C, extended forward of the standard or beam, the braces *c c*, the plow E, and the brace-bar D, extended obliquely forward from the bracing-point of the beam and bolted to the plowshare and handle-extension, substantially as set forth.

**261,986. CHARLES BEIDLER,** Allentown, Pa., assignor of one-half to Edward Harvey, same place. Plows. Aug. 1, 1882. Filed June 14, 1880.

Claim. 1. The combination of the beam A, the plow having a standard, G, with rearwardly-projecting frame J, adjacent to the beam, the transverse bolt *a*, whereby the plow is pivoted to the beam, devices whereby the rear end of the plow may be adjusted both vertically and laterally, and filling-pieces *s*, introduced between the beam A and frame J in rear of the bolt *a*, as specified.

2. The combination of the beam A, the plow having a standard, G, adjustable in respect to the beam, the slotted colter H, and the bolt *a*, passing transversely through the beam, standard and slotted colter, and serving to secure said standard and colter to the beam, as set forth.

3. The combination of the beam A, the plow having standard G and frame J, the rod *w*, hav-

ing a vertical portion adapted to the beam, and a horizontal portion projecting laterally beyond the same, and filling-pieces *s*, hung to said rod and capable of sliding thereon, as set forth.

4. The combination of the beam A, the plow having the standard, G, adjustable in respect to the beam, the slotted colter H, the shank of which has a shoulder bearing on the standard, and the bolt *a*, passing through the beam standard, and slotted colter, and serving to secure said parts together, as set forth.

**262,062. WILLIAM A. LEE,** Winfield, Kans. Plows. Aug. 1, 1882. Filed May 18, 1882.

Claim. 1. The combination, with a plow, of a roller placed horizontally in the rear of the mold board, and provided at the one end with a beveled flange, and journaled in plates adapted to be adjustably bolted to the plow, substantially as set forth.

2. The combination, with a plow having a fallow landside or sole D secured opposite the landside of the plow, and the slotted bearing-plates B, adjustably bolted to the inner sides of said landside and fallow-landside, of a roller provided at one end with a beveled flange and journaled in said bearing plates, substantially as set forth.

**262,413. FONTAIN P. HOKE,** Sullivan, Ill. Plows. Aug. 8, 1882. Filed Apr. 26, 1882.

Claim 1. The detachable plow-standard *d*, having the perforated lugs *I' n*, and provided with the perforated rear brace, *e*, formed integral therewith, for the attachment of the landside plow-handle and the rear end of the beam, the said rear brace, *e*, being curved forward at its upper end, and provided with the inwardly projecting arm *k*, having its under face serrated, substantially as herein shown and described, and for the purpose set forth.

2. The combination, with the standard *d*, provided with the perforated lugs *n l'* and rear brace, *e*, curved forward at its upper end, and provided with the upwardly-projecting arm *k*, having its under face serrated, of the plow-beam *g*, pivoted between the lugs by the bolt *s*, and provided with the vertical hole *r* and slot *u*, stirrup *v*, and key *w*, substantially as described, and for the purpose set forth.

**262,469. JAMES A. PEEK,** North Manchester, Ind. Plows. Aug. 8, 1882. Filed June 3, 1882.

Claim. 1. The standard A, having a ledge *a'*, recess *a'*, projection *a''*, dovetail recess *a'''*, and an inclined flange, *a*, adapted to receive the cutter and mold-board, substantially as shown and described.

2. The plow-point C, made wedge-shaped and recessed transversely the rear portion of its length, and having projecting from its ends the loop or bar *c*, substantially as shown and described.

3. The combination of the standard A, projection *a''*, and recess *a'* with the landside D,

its pin  $d$ , and plow-point C, all arranged to operate substantially as and for the purposes set forth.

**263,256. GEORGE W. VERNON,** Greensborongh, N. C., Plow - Standards. Aug. 22, 1882. Filed May 29 1882.

Claim. 1. The standard provided with the slots  $e$   $e$ , one above the other for the passage of the threaded ends of the cuff brace and with the oppositely inclined face-bearings F F, terminating said slots exteriorly and turned toward each other to throw the nuts inward and effect a clamping bend of said threaded ends, substantially as specified.

2. The combination with the cuff brace C, and the slotted standard having the oppositely inclined bearings F F, of the beam, its protecting plate k and the nuts n n substantially as specified.

**263,289. RICHARD K. HEALD,** Holland; **LUCINDA M. HEALD,** Administratrix, of said RICHD. K. HEALD, deceased, assignor of one-half to Salmon T. Green, Charlotte, Mich. Plows Aug. 22, 1882. Filed July 1, 1881.

Claim. In a plow the brace for the beams and standard consisting of an upper plate g, adapted to be placed upon the top side of the beams and a plate g' adapted to be placed beneath the beams and provided with a vertical tongue g<sup>2</sup> adapted to enter a suitable recess in the under side of the plate g whereby the plates are more thoroughly secured in place the whole being bound firmly together the plates by the bolt g<sup>3</sup> and the beams by the bolts d<sup>2</sup> substantially as shown and described.

**263,789. JAMES W. JORY,** Marysville, Cal. Plows. Sep. 5, 1882. Filed June 12, 1882.

Claim. In a plow the landside D, share E, with its point j having a beveled edge and shoulder g' and its front piece I, with its side groove i having beveled bottoms k k' its socket or mortise m and hole m' the reversible cutting blade or edge G, with its sloping ends having shoulders g and beveled grooves h to fit the beveled edges and shoulders of the share E and front pieces I, and having bolt holes a as shown and the reversible point H, with its tenon p and shank q all arranged fitted and constructed substantially as and for the purpose herein set forth.

**264,828. CHARLES HANSON,** Rock Island Ill., assignor of one half to Frederick Appelquist, same place. Plows. Sep. 19, 1882. Filed Mar. 27, 1882.

Claim. 1. In a plow, the landside-plate E', formed in one piece with the frog C, and the standard H, in combination with the mold-board A, share B, and recessed point F, form-

ed to interlock the share and landside E, substantially as and for the purpose set forth.

2. In a plow, the combination, with the landside thereof, having the slotted plate e, of the vibrating base-plate I and screw-bolt d, substantially as and for the purpose specified.

**264,885. KIRK KELLOGG,** Kalama-zoo, Mich. Plows. Sep. 26, 1882. Filed July 1, 1882.

Claim. 1. The shoe of the plow having perforated countersink, in combination with a detachable part of the share having the belt-head recess, and the bolt having a head adapted to fit adjustably in said recess, all substantially as set forth.

2. A detachable part of a plowshare provided with the bolt-head recess, the shoe having the perforated countersink, and the bolt having a securing-nut and a head adapted as set forth, substantially as shown.

**265,484. REUBEN F. COCHRAN,** Jefferson, assignor of one-third to Douglass H Hargate, Frederick, Md. Plows. Oct. 3, 1882. Filed May 2, 1882.

Claim. The combination, in a plow, of the frame G, having parallel sides g, a perforated arm G', extending upwardly from its rear and adjustably secured to the beam, and at its front a spring-plate g<sup>2</sup>, detachably bolted to the under side of the mold-board, with the single wheel F mounted between the parallel sides of said frame, and located so as to balance the plow, substantially as described.

**267,311. HIRAM O. KERNS,** Sutherland, Va. Device for Attaching Plow-Beams to Handles. Nov. 7, 1882. Filed July 14, 1882.

Claim. The combination, with the beam and handle of a plow, of the slotted casting B, having ratchet-teeth formed on its side at an angle thereto, the ratchet-plate A, and the clamping-bolt, substantially as described.

**269,457. LEROY S. PFOUTS,** Wilmot, Ohio. Plows. Dec. 19, 1882. Filed Apr. 6, 1882.

The jointer mold-board turns in a reverse direction from the plow mold-board. A crank and handle lift the rake from the ground.

Claim. 1. In combination with a plow, a jointer having its mold-board turned in a contrary direction to the plow mold-board and extended beyond the standard so far that the turf will be dropped in or near the furrow in rear of the plow, substantially as and for the purpose described.

2. The combination, with a plow, of the rake H, having a flexible shank bent to form a vertical section swiveled to the plow, and provided with a crank-shaft and an adjusting rod or handle, substantially as and for the purpose described.





## POINTS.

| <i>Plate</i>                        | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>                        | <i>Plate</i> | <i>Claim</i> |
|-------------------------------------|--------------|--------------|-------------------------------------|--------------|--------------|
| Anderson, C.                        | 715          | 458          | Gero, E. C. and Cooley,<br>J. N.    | 700          | 452          |
| Anderson, C. and Oliver J.          | 715          | 458          | Gibbs, W., G. and Wikidal,<br>L. P. | 698          | 452          |
| Armstrong, R. A. J.                 | 707          | 455          | Gibbs, M. L.                        | 703          | 453          |
| Barn, J. H.                         | 712          | 457          | Hall, J. S.                         | 695          | 451          |
| Bates, L. M.                        | 697          | 451          | Hall, H. G. and E. L.               | 697          | 452          |
| Beach, W.                           | 691          | 449          | Hall, L. W.                         | 712          | 457          |
| Bement, E.                          | 695          | 451          | Harvey, B.                          | 703          | 453          |
| Bergen, C.                          | 691          | 449          | Herring, J. F.                      | 704          | 454          |
| Beverly, J. W.                      | 707          | 456          | Hildreth, G. W.                     | 701          | 453          |
| Bowers, M. M.                       | 705          | 454          | Jenkins, C. W.                      | 709          | 456          |
| " " "(R)                            | 705          | 454          | Jenkins, W. F. and C. W.            | 711          | 457          |
| " " "(R)                            | 706          | 455          | Kerr, C. B.                         | 700          | 453          |
| Bowers, M. M.                       | 710          | 456          | Kessler, P.                         | 711          | 457          |
| Browshier, N. P.                    | 710          | 457          | Killefer, J.                        | 714          | 458          |
| Bronson, P. K.                      | 696          | 451          | Kniphals, H.                        | 698          | 452          |
| Brown, J. B. and Pen-<br>treath, J. | 712          | 457          | Lane, J.                            | 698          | 452          |
| Bucher, J. R.                       | 708          | 456          | Lane, J.                            | 699          | 452          |
| Bullock, W.                         | 693          | 450          | Lane, J.                            | 701          | 453          |
| Burch, L. D.                        | 699          | 452          | Lee, H. A.                          | 703          | 453          |
| Caldwell, F. M.                     | 700          | 453          | Long, J.                            | 711          | 457          |
| Calvin, L. H. and Wal-<br>lace, J.  | 705          | 454          | McIntyre, A. L.                     | 708          | 456          |
| Cameron, W. F.                      | 716          | 459          | Maschka, A.                         | 696          | 451          |
| Chandler, B. F.                     | 709          | 456          | Myers, C.                           | 703          | 453          |
| Conklin, J. H.                      | 691          | 449          | Nelson, D.                          | 696          | 451          |
| Cook, W. H.                         | 708          | 456          | Norton, H.                          | 694          | 450          |
| Conaway, W. A.                      | 708          | 456          | Oliver, J.                          | 712          | 457          |
| Cooper, G. W.                       | 699          | 452          | Oliver, J.                          | 713          | 457          |
| Cuming, T., Jr.                     | 702          | 453          | Oliver, J.                          | 714          | 458          |
| De Vampert, T. J.                   | 694          | 450          | Peek, J. A.                         | 704          | 454          |
| Dicer, W.                           | 716          | 459          | Pinney, N. G.                       | 706          | 455          |
| Edmunds, T.                         | 702          | 453          | Post, J. W.                         | 692          | 450          |
| Ferguson, J. B. and White,<br>S. M. | 701          | 453          | Rams, T.                            | 697          | 451          |
|                                     |              |              | Ready, W. B.                        | 706          | 455          |
|                                     |              |              | Reed, L. M.                         | 699          | 452          |

## POINTS.

**CONELIUS BERGEN**, Brooklyn, N. Y.

Plow-Points. Nov. 11, 1819.

No claim. A removable and reversable point and share, separately attached. The point has a longitudinal groove in either side, into which the edge of the share takes for steadyng it. The share is provided with a shoulder which abuts the mold-board to which it is recured.

**ROSS WINANS**, Vernon, N. Y. Plows.

May 11, 1824.

No claim. A rhombid shaped point made of wrought or cast iron or steel is secured to the upper side of the lower edge of the mold-board and is capable of being adjusted up or down and reversed to bring the different wearing surfaces into position.

**WILLIAM BEACH**, Philadelphia, Pa.

Plow-Points. Nov. 8, 1825.

No claim. A detachable three winged concaved and self-sharpening tooth or point; a three winged point or share for a two winged plow of triangular shape. The tooth or point and share may be all cast in one piece (or not) with the wings extending out from the center in a triangular form.

**JAMES H. CONKLIN**, Peekskill, N. Y.

Plows. Jan. 13, 1830.

Claim. 1. The improvement in the cast-iron plow share, as described, the share having two points and two eyes which may be reversed at pleasure, thereby serving the purpose of two common shares and costing no more than one of the ordinary kind.

2. The mode of fastening the share to the mold-board as described.

### Original and Reissue Drawings Lost.

**233. BANCROFT WOODCOCK**,

Mount Pleasant, Pa. Plows. June 14, 1837.

The share which I use is the same in its general form as that described in patent to me Nov., 23, 1836. The face on each side has its surface flat from each cutting-edge to a shoulder. By this means I am enabled to make the share so thin throughout its width that as it wears up toward the mold-board it is still sufficiently so on its edge to pass freely through the ground. It has two holes through it, by one or the other of which it is bolted to the mold-board.

In the landside of my plow, within a recess or depression I place a reversing cutter, the general form of which is that of a triangle, either end of which may be turned forward, so as to constitute the cutting-edge formed by the junction of the mold-board and landside of the plow. This reversing cutter may be fastened in its place by making it hollow, so as to receive a part of the landside, allowing space enough between the piece and the cutter to in-

sert a wedge or wedges. The edges are made dovetailing or beveled, to clip in the inner edges and hold it firmly against the landside when wedged. One of the edges may reach to the bottom of the landside; or it may stand a little above it, having a strip of iron below it, which strip in this case forms a side of the recess.

I have also made an improvement in the manner of making the renewable point. I now prepare a V-formed piece of iron or steel, which fits onto the shank embracing it on both sides, and fastened to it by a rivet passing through the whole. The renewable point is thus rendered more permanent than upon the former plan, and the shank is prefectly protected from grinding out in wear.

In order to secure the landside to the mold-board, I cast the fitting part with dovetail juncures in such a way as that, when secured together by wedges passed between cheeks adapted to that purpose, the parts interlock, and retained firmly in their places.

Claim. 1. Making it with plain surfaces instead of curved ones, in the manner described, continuing such surfaces to the shoulder on each side, so as to leave the metal throughout so thin that when it wears off by use the share will still present a thin edge to the ground.

2. The reversing cutter, received into a recess on the landside and capable of having either of its edges presented forward, so as to form the cutting-edge of the plow, and secured in its place on the landside by a wedge or wedges, or in any other manner which may be preferred.

3. The mode of forming the renewable point, as herein specifically set forth.

**476. B. WOODCOCK**, Mount Pleasant, Pa. Plows. Patent 233 dated June 14, 1837. Reissued Nov. 23, 1837.

Claim. 1. The making it with plain surfaces, instead of curved ones, in the manner described, containing such surfaces' shoulder on each side, so as to leave the metal throughout so thin that when it wears off by use the share will still present a thin edge to the ground.

2. The reversing-cutter, received into a recess on the landside and capable of having either of its edges presented forward so as to form the cutting-edge of the plow, and secured in its place on the landside by a wedge or wedges, or in any other manner which may be preferred.

3. The mode of forming the renewable point, as herein specially set forth, and the dovetailed or acute angular form given to the shank of the renewable point for the purpose of clasping and holding down the reversible cutter.

**295. ISAAC SNIDER**, Mount Pleasant, Pa. Plows. July 29, 1837.

Claim. 1. The use and application, in the manner and for the purpose before described, of the collar.

2. The adaptation of the mold-board for the reception of the collar.

3. Making the socket in which the shank of the point is inserted open at the bottom.

4. The mode of fastening the point by passing the end of the shank under the nut, and also the mode of fastening the cutter, as before described.

**44. ISAAC SNIDER,** Carrollton, Pa.

Plows. (A. I.) To Patent No. 295, dated July 29, 1837. May 11, 1841.

Claim. 1. The groove *f*, of the mold-board at *c*, for the end of the share to lay in.

2. The two projections or hooks, of the cutter at *m* and *n*, the one at *m*, to hook on the neck of the mold-board at *d*, and the other at *n*, to hook below the point at *k*, to support the same by means of which arrangement the cutter serves as a clamp to hold the mold-board and point together.

3. The cutter being in to separate pieces having a depression at *p* to admit a movable blade *w*, to be fastened in with two rivets this enables the farmer to change the edge from wrought iron to steel without the expense of a new cutter.

4. The share composed of two pieces, also having a tenon at *s*, in front for the reception of a movable blade *t* slit open on the back at *x* to slip over the tenon and fasten thereon with rivets, this serves the same end given in the foregoing description of the cutter.

**970. JOHN W. POST,** Baltimore Md.

Plows. Oct. 8, 1838.

Claim. The peculiar manner of uniting or combining the share with the mold-board and land-side, and the manner of regulating the position of the share by means of the slot or slots in the share, all as represented in the different figures in the drawings.

**4,127. WILLIAM BULLOCK,** Jersey City, N. J. Plows July 30, 1845.

Claim. 1. The loose points upon the upper side of the share being connected to the share by means of a dovetail or other analogous device.

2. The invention of a plow having one or more points between the forward point and the back end of the cutting part of the share, whether cast fast to the share or loose, as substantially in the manner and for the purpose set forth.

**6,179. W. T. SPROUSE,** Petersburg, Ill. Plows. Mar. 13, 1849.

Claim. The constructing the share and point of my improved plow of a diamond-shaped flat plate of metal, *B*, placed under the mold-board *C*, and combined therewith and with the flange *z* and standard *t* of the casting *A* in such a manner that the share-plate *B* can be moved forward to a proper position as its

operating point or share-edge wears away by use without producing the slightest change in the form or position of the winding concave face of the mold-board, substantially as represented and described herein, and for the purpose set forth.

**7,223. IRA REYNOLDS,** West Liberty, Ohio. Plow Points. Mar. 26, 1850.

Claim. 1. Making the reversible point *F* with the triangular shoulders *F' F''*, in combination with the screw *f'* and nut *N*, for binding firmly together the landside *E*, mold-board *C*, cutter *G*, and share *H*, as well as securing itself, in the manner herein fully described.

2. The device for fastening the reversible share to the flange on the lower part of the mold-board, substantially as set forth.

3. The manner of employing the inclined brace-rod *I*, in combination with the box-plate *P*, cast on the inside of the mold-board, for adjusting the beam to take more or less land to act as a substitute for the clevis, and at the same time to brace or stiffen the wood-work of the plow by attaching it to the cast-iron mold-board and landside, as described.

**9,332. JAMES ROBB,** Lewistown, Pa.

Plow Points. Oct. 12, 1852.

Claim. Holding the share *E* to its place by a tightening-wedge, *F*, having a lip, *m*, for lap or bite on the share, in conjunction with the headed or lipped studs *i i* for further securing the same.

**11,201. JACOB REVERCOMB,** Botetourt Springs, Va. Plows. June 27, 1854.

Claim. The mode of fastening the points, the same consisting in the insertion of the key through an opening in the landside, substantially as set forth, in combination with a slot so placed in the stem of such points that in the different or reversed positions of the points that the slot shall be in place for the reception of the key.

**13,653. HARRISON NORTON,** Farmington, N. J. Plows. Oct. 9, 1855.

Claim. Attaching the share *E* to the mold-board *C*, and landside *D*, of the plow by a hinge or joint, and moving said share by means of the bar *G* and lever *H*, or their equivalents, substantially as shown and described.

**23,974. T. J. DEYAMPERT,** Shohola, Pa. Plows. May 10, 1859.

Claim. 1. A revolving cone having undercut or overhanging curved flanges or wings that extend entirely from the base to the point of the cone, so that it will revolve upon its shaft or journal by the resistance of the earth alone against it, and without being driven by other forces, as described.

2. In combination with a cone furnished with spiral under-cut flanges, and revolving by the resistance of the earth against it, the mold board and landside for turning over the loos-

ened earth and directing the plow in its path, substantially as described.

**30,263. JOHN A. STEWART,** Philadelphia, Miss. Plows. Oct. 2, 1860.

The invention consists in the arrangement of an adjustable triangular point, perforated cutter, and landside, also perforated and adjustable, and the mold-board of a plow.

Claim. The arrangement of an adjustable, triangular point C, perforated at J<sup>1</sup> J<sup>2</sup>, cutter and landside D, also perforated and adjustable, and mold-board A of a plow, the whole constructed substantially as and for the purposes set forth.

**30,352. HENRY D. ROGERS,** Grafton, Ohio. Securing Points to Plows. Oct. 9, 1860.

This invention consists in providing the forward portion of a plow with a steel or hardened point, the upper lip of said point extending back and above the forward portion of the plow, and the under portion of said point extending the entire length of the lower portion of the landside of said plow, and there secured by means of lips and set screw.

Claim. The securing the points B by means of the shoe A, hook D, and set-screw E, the whole being arranged in the manner and for the purpose as described.

**31,684. G. A. WALKER,** Annville, Pa. Plows. Mar. 12, 1861.

The shank of the plow point is of tapering form, the upper and lower sides being concave or grooved so as to fit in a corresponding recess in the landside. When one side of the point is worn, it may be readily removed and reversed within the recess, thus rendering it self-shapening.

Claim. The arrangement of the detachable and reversible plow point B, with landside recess D, said point having a tapering shank C, with concave upper and lower edges d d, and being otherwise constructed as described.

**35,819. J. S. HALL,** Pittsburg, Pa. Plowshares. July 8, 1862.

Claim. Drawing and bending a plowshare out of a single piece of steel or iron that shall have a blade B and cutter A upon it when finished, substantially as described.

**36,447. EDWIN BEMENT,** Fostoria, Ohio. Plow Points. Sep. 16, 1862.

Claim. The ribs B C, both above and below the plow point proper, for the purpose of protecting the corners from wearing off or becoming rounded by use, and also to strengthen the point against a vertical strain and thus preserve it from being broken, as specified.

**44,442. DAVID NELSON,** Port Washington, Ohio. Plows. Sep. 27, 1864.

Claim. A plowshare cast with a socket, for the purpose of receiving and securing a steel point, in the manner and for the purpose herein set forth.

**50,942. ANTON MASCHKA,** Chicago, Ill. Plowshares. Nov. 14, 1865.

The leading feature in this invention consists of a sharp blade projecting at right angles to the wing of the share at the rear end thereof, in combination with the share and mold-board. The office of this blade is to cut off roots that would otherwise escape the action of the share.

Claim. In combination with the mold-board O, stand a, and brace d, the root cutter c, when constructed in the manner herein set forth.

**53,491. CYRUS W. SALADEE** and **THOMAS SIMPSON,** Newark, Ohio. Plow Points. Mar. 27, 1866.

Claim. 1. Imbedding the point A<sup>1</sup> in the top surface of the share B, in the manner and for the purpose substantially as shown and described.

2. The stud C<sup>1</sup>, figure 3, or its equivalent, in combination with the point A A<sup>1</sup>, indentation F, and slot H, as and for the purpose substantially as set forth.

3. The bevelled lips E of the point A, figure 3, in combination with the corresponding lips E, figure 2, substantially as and for the purpose shown and described.

4. The short wedge D, figure 3, in combination with the stud C<sup>1</sup>, and slot H, in the manner and for the purpose substantially as shown and described.

**53,565. P. K. BRONSON,** East Avon, N. Y. Plowshares. Apr. 3, 1866.

A projection on the rear of the point enters a dovetail depression in the nose of the share; a vertical set-screw passes through and attaches the respective parts.

Claim. Securing the detachable false point P, to the shares of plows by means of the screw bolt S and the dovetail locking lips a, b, and c, substantially in the manner and for the purposes herein set forth.

**54,095. L. M. BATES,** Newark, Ohio. Plows. Apr. 24, 1866.

Claim. The detachable point C, attached and secured to the plowshare by a shank, having a dovetail section, substantially as and for the purpose specified.

**57,968. TILLMAN RAMS,** Keokuk, Iowa. Plows. Sep. 11, 1866.

The land edge of the share has a socket to receive a prolongation of the landside.

Claim. The share A, provided with the socket C, in combination with the bar secured to the landside S, when constructed as and for the purposes and substantially as described.

**64,914. DAVID J. SELDEN,** Mount Vernon, Ohio. Plow Points. May 21, 1867.

Claim. The wrought-iron tenon cast in the cast-iron share, with shoulders on each of the four sides of the tenon, the point with the mortise to fit the wrought-iron tenon, with either

side of the point up and with the back end of the point of the same size and meeting the shoulders on the cast-iron share. The counter-sunk hole through the mortise point and the wrought-iron tenon, with the pin passed through the hole to keep the point to its place on the tenon, and the split point of the pin so sprung as to keep it in its place and to hold the point to its place on the tenon with either side up.

**64,974. H. G. and E. L. HALL,** Putnam, Ohio. Plows. May 21, 1867.

Claim. 1. The detachable side plate B of the plow point A, substantially as and for the purpose specified.

2. The cutting point C, composed of a wrought-iron shank c and a cast or chilled-iron cap c', substantially as and for the purpose described.

3. The method above described of attaching the side plate B to the plow joint A by means of shouldered pins b' b' projecting from the side plate B into slots in the body of the plow point, where the shoulders of the pins rest on the ledges or keys in the walls of the slots, substantially as and for the purpose specified.

4. The method of attaching the shank c to the plow point A, above described.

5. The independent cutter or colter H, substantially as and for the purpose described.

6. The construction of the cutting point C and the groove or bed a, as above described, so that the cutting point may be self-sharpening, substantially as and for the purpose specified.

**67,831. WILLIAM B. WILLIAMS,** Warrenton, N. C. Cotton Plows. Aug. 13, 1867.

The elongated winged points are intended for cultivating the cotton when the plant is young.

Claim. The extension of the wing or wings of the point, also the curve of the point or points.

**68,755. HINRICK KNIPHALS,** Davenport, Iowa. Plow Points. Sep. 10, 1867.

Claim. 1. The application of a hollow iron or steel point C to a plow from which the point is worn away by use, to restore the proper form.

2. The hollow point C applied to the plow which is broken or breaking apart at the point not only to restore its true form, but also to bind the parts together firmly, at the same time covering the break and presenting a smooth surface to the earth, which slides over it.

**71,735. WM. GIBBS, GEO. GIBBS, and L. P. WIKIDAL,** Canton, Ohio. Plows. Dec. 3, 1867.

The share is rabotted to receive the fore end of the mold-board.

Claim. The flange or cast shares, when constructed and used as hereinbefore described.

**76,208. JOHN LANE,** Chicago, Ill. Plows. Mar. 31, 1868.

The place in a steel plow where the lay is welded to a landside bar is protected by a removable slip point. A pin cutter may be made on the point.

Claim. The particular form and construction of the slip point, as arranged, either with or without the flange n, and either with or without the pin cutter m, in combination with a lay and landside welded together, as described and for the purpose shown.

**80,189. JOHN LANE,** Chicago, Ill. Plows. July 21, 1868. Antedated Mar. 31, 1868.

Claim. 1. Forming a dove-tail, tapering, open-groove matrix on the side of a removable slip plow point, substantially as described and for the purpose shown.

2. The particular form and construction of the slip point, as arranged and described, and for the purpose shown.

3. Forming and constructing a slip point, as shown and described and claimed above, with a fin cutter, as arranged and shown.

4. The particular arrangement of the share C, flange E, and landside D, as shown, in combination with the above-described and above-claimed slip point, either with or without the fin cutter, as described and for the purpose shown.

**83,130. LYMAN D. BURCH,** Sherburne, N. Y. Plow Points. Oct. 20, 1868.

On the back of the point where the end of the mold-board laps on it, a stout rib, with branches, is formed. Stays or ribs are fixed on the ends of the wings, extending beyond them on the back side,lapping over the mold-board.

Claim. 1. The ribs or braces D, D<sup>1</sup>, and D<sup>2</sup>, constructed and operating substantially as described.

2. The stays E and E', constructed and operating substantially as described.

**84,798. GEORGE W. COOPER,** Ogeechee, Ga. Plowshares. Dec. 8, 1868.

The usual landside plate is dispensed with and the front cutting edge is made concave on the under side, thereby causing the plow to rest on the left-hand edge.

Claim. A cast iron plowshare A, made as described, without a landside plate, and with a concave front edge, substantially as and for the purpose set forth.

**85,533. L. M. REED,** Troy, Ohio. Plowshares. Jan. 5, 1869.

Claim. A plowshare, provided with cutters, constructed and arranged substantially as and for the purpose set forth.

**87,484. EDWARD C. GERO, and JAMES N. COOLEY,** Kalamazoo, Mich. Plow-Points. Mar. 2, 1869.

Claim. A steel socket plow-point, constructed in the manner described, the same being secured to and in combination with a cast-iron

plow-point or share substantially as herein set forth.

**89,486. CHARLES B. KERR,** Columbus, Ind. Plow-Points. Apr. 27, 1869.

Claim. The cavity or recess D', in the cast portion of the plow-point, for the purpose of facilitating the removal of the steel portion of such point, substantially as shown and described.

**90,604. OLE O. STORE,** Norway, Wis. Plow-Points. May 25, 1869.

Claim. 1. Plow-point B, with its socket G, in combination with plow-frame A, substantially as described.

2. Adjustable plow-point B, substantially as described.

**97,162. FRANCIS M. CALDWELL,** New York, N. Y. Plows. Nov. 23, 1869.

Claim. 1. The adjustable stem B, when constructed and arranged in the manner and for the purpose herein described.

2. The combination and arrangement of the stem B with the plow-sweep A A, bolt e, and lug e, in the manner and for the purpose herein described.

**110,693. GEORGE W. THROP,** Columbus, Kans. Extension Plow-shares. Jan. 3, 1871.

Claim. The share E, fast to adjustable bars G G, combined with a slotted-plate, B, rigidly attached to an immovable brace, C, for the purpose of allowing the said share to be extended in the manner described.

**110,860. JOHN LANE,** Chicago, Ill., assignor to Hapgood & Co., same place. Plowshares. Jan. 10, 1871.

Claim. A plowshare having a thick flange, a, a thick end, b, and a thin body, c, when made by first making a share-blank having a thick end from one piece of metal, and afterward welding thereto the flange a, substantially as and for the purpose set forth.

**112,234. JONN B. FERGUSON, and SAMUEL M. WHITE,** Big Lick, Va. Plows. Feb. 18, 1871.

Claim. The within-described reversible point G, provided with a shoulder and notch near each end, secured under the edge of the notched land-side D by means of the ear d and bolt b, and used in combination with the mold-board C and share E, all substantially as set forth.

**113,665. GEORGE W. DILDRETH,** Lockport, N. Y. Attaching Plow-Points. Apr. 11, 1871.

Claim. The plow-point, when constructed with the shin-piece a boxed into the stock upon the land-side and bolted thereto, lapping over said land-side from e to h, as herein set forth and shown, for the purpose specified.

**118,119. THOMAS EDMUND,** Talcott, Va. Plows. Aug. 15, 1871.

Claim. The combination of the share A with guide or box a, and the point B with shank C and rib b, all substantially as and for the purposes herein set forth.

**120,248. THOMAS CUMINGS, Jr.,** Brookhaven, Miss. Plows. Oct. 24, 1871.

Claim. The combination, with the mold-board and landside of a turn-plow, of share D, arranged and adjustable between them, as and for the purpose specified.

**126,856. LYMAN WEEKS and JOHN S. TRIMBLE,** Shelly, Ohio. Plows. May 14, 1872.

Claim. A plow having the cast-iron core or body D formed with a land-side lug, D', and recessed at the front and side edges, as described, for the reception of the steel cutter and nose, all constructed and arranged substantially as specified.

**128,221. MARTIN L. GIBBS,** Canton, Ohio. Plow-Points. June 25, 1872.

Claim. As a new article of manufacture, a plow-point, when constructed as herein described and shown.

**132,677. HARRISON A. LEE,** Parkman, Ohio. Plows. Oct. 29, 1872.

Claim. The combination, with the plow-point, A, of the extended and curved fin B, constructed substantially as described, and arranged on the land-side of the plow, for the purposes set forth.

**133,854. BARNARD HARVEY,** West Bloomfield, N. Y. Plowshares. Dec. 10, 1872.

A detachable V-shaped cutting-edge, shrunk upon the edge of the share.

Claim. The supplemental cutting-edge A, formed as described, and adapted to a plow-share in the manner herein shown, for the purpose specified.

**145,361. CHRISTIAN MYERS,** Marysville, Cal. assignor to himself and Francis J. Schaeffer, Davenport, Iowa. Subsoil gang-plows. Dec. 9, 1873. Filed Aug. 16, 1873.

The plowshare and lower section of landside are connected rigidly, and overlap the corresponding parts of the plow, where they are held by a hook on the under side of the share engaging in a slot beneath, and by a wedge passing through the two parts of the land-side.

Claim. The combination of detachable share G, having hooks e and rear extension of point H, with under side G' and land-side H', by means of slot e', apertures f f', and wedge-piece g, for the purpose set forth.

**150,087. JOHN C. F. SCHENCK,** Peru, Ill., assignor of one-half his right to Charles Brunner, same place. Plowshares. Apr. 21, 1874. Filed Sep. 6, 1873.

The alleged invention consists in "laying" (welding) a piece of steel to the under side of

the heel of the share, so that it may be drawn out and sharpened, when worn, without welding on a new piece every time it becomes necessary to sharpen the share.

Claim. A plowshare having the heel or corner *a* thickened on the under side, to furnish sufficient substance to enable the heel, after it is worn off, to be forged out and sharpened, substantially as and for the purposes set forth.

**153,109. J. A. PEEK,** North Manchester, Ind. Plow-Points. July 14, 1874. Filed May 9, 1874.

The point forms part of the land-side, and is of diamond shape and reversible. It slides into place between beveled plates, and under a grooved lug, and is secured by a center plate and bolt.

Claim. The land side of the beam standard A constructed with a grooved and notched portion, *a*, in combination with the removable plates B C, the grooves *d* & *d* the point D, and clamping-plate E, constructed substantially as described.

**154,139. JOS. F. HERRING,** Mansfield, Ohio. Plow Points and Shares. Aug. 18, 1874. Filed Nov. 22, 1873.

From a plate of steel a hollow point and a share are formed to receive the point and lateral edge of the mold-board.

Claim. The combined plow point and share herein described, consisting of a single steel plate, A C, having the point socket A B, formed at its front end to receive and cover the plow point, and provided with the clasps D D, to hook under the front edge of the mold-board substantially as and for the purpose specified.

**157,465. CHARLES C. STRONG,** Defiance, Ohio. Plows. Dec. 8, 1874. Filed June 13, 1874.

Claim. 1. The grooved land-side A, having wing B and dovetailed groove *e* in combination with the detachable point D, having dovetailed tongue *d* as set forth.

2. In a plow, the combination of the grooved land side A, having the wing B, the share C point D, tongue *d* and groove *e*, all constructed as shown and described.

**157,790. LUTHER H. CALVIN and JOHN WALLACE,** Melburn, Ohio. Plow-Points. Dec. 15, 1874. Filed Nov. 26, 1874.

A slip point and share formed of plate steel doubled at the land-side, and welded at the outer edges.

Claim. The socket A, and the wing B in V-form, in section, with edges *a b d e*, and formed of a single piece of sheet steel, bent and welded as described, forming a plow point and a wearing surface for both the upper and lower portions of the share, and secured in position without bolts or lugs, as and for the purpose set forth.

**163,563. JOHN P. ZELLER,** South Bend, Ind. Plows. May 18, 1875. Filed Jan. 20, 1875.

The front section of the mold-board is detachable, and secured by a wing, which laps by the standard on the land-side. To its lower angle is fitted the share, secured by a hook and bolt.

Claim. In a plow, the combination of the plow-point D, provided with lug *b*, and the colter E, provided with the wing G, the point and colter being constructed, as described, of separate pieces, and detachable independently of each other, substantially as herein set forth.

**165,703. M. M. BOWERS,** Richmond, Va., assignor to himself and John P. Schemerhorn, same place. Reversible Plow-Points. July 20, 1875. Filed Dec. 19, 1874.

Flanges upon either side of the shank fit over the socket. The point is reversible.

Claim. A detachable and reversible plow-point, B, made with lips upon the upper and lower edges of the sides of its shank *B*, whether said shank be made tapering or with parallel sides, substantially as herein shown and described.

**7,894. MARCUS M. BOWERS,** Richmond, Va., assignor, by mesne assignments, to himself, John P. Schemerhorn, and T. M. Hittzheimer, Jr. Reversible Plow-Points. Patent No. 165,703, dated July 20, 1875. Reissued Sep. 25, 1877. Filed Aug. 10, 1877.

Claim. 1. A plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-points and diverging from the base on either side, to form a wedge-shaped opening for the plow-point, as set forth.

2. A plow-point in the form of an equal-sided wedge, in combination with a plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-point and diverging from the base on either side, to form a wedge-shaped opening for the plow-point, as set forth.

3. An equal-sided wedge-shaped plow-point, as described, in combination with the plow-share, having a central opening passing vertically entirely through the same, said plow-point being provided with a shank which is securely retained in the opening in the share, both laterally and vertically, independent of external fastenings, as and for the purposes set forth.

4. A detachable and reversible plow-point, C, with lips upon the upper and lower edges of its shank, in combination with a plow-share in which is a central opening formed to receive said shank, as and for the purpose set forth.

**9,236. MARCUS M. BOWERS**, Richmond, Va., assignor, by mesne assignments, to himself, Thomas M. Hiltzhimer, Jr., and Edward D. Utter, Executor. Reversible Plow-Points. Original No. 165,703, dated July 20, 1875. Reissue No. 7,894, dated Sep. 25, 1877. Reissued June 8, 1880. Filed Apr. 6, 1880.

Claim. 1. A plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-point and diverging from the base on either side, to form a wedge-shaped opening for the plow-point, as set forth.

2. A plow-point in the form of an equal-sided wedge, in combination with a plowshare having its forward end slotted vertically entirely through, and the sides or walls of said slot converging from the base at equal angles on top and bottom, the lines meeting at the plow-point and diverging from the base on either side, to form a wedge-shaped opening for the plow point, as set forth.

3. An equal-sided wedge-shaped plow-point, as described, in combination with the plowshare having a central opening passing vertically entirely through the same, said plow-point being provided with a shank which is securely retained in the opening in the share both laterally and vertically independent of external fastenings, as and for the purposes set forth.

4. A detachable and reversible plow-point, C, with lips upon the upper and lower edges of its shank, in combination with a plowshare in which is a central opening formed to receive said shank, as and for the purpose set forth.

5. A plowshare having its front end slotted vertically entirely through, and having a side face of the socket thus formed constructed to receive and interlock with a correspondingly-shaped side face of the shank of a plow-point, substantially as set forth.

6. A plow point having a supporting-shank constructed with a substantially vertical side face adapted to interlock with a correspondingly-shaped side face of a socket formed in the front end of a plowshare and provided with a vertical key-seat to receive a key interposed between two adjacent side faces of the shank, and adapted to press the interlocking faces tightly together, substantially as set forth.

7. A plowshare having a socket constructed with a substantially vertically interlocking side face, in combination with a plow-point provided with a shank having a side face adapted to interlock with the side face of said socket, and a vertical key-seat adapted to receive a key between the side wall of the shank and the side wall of the socket, substantially as set forth.

**171,068. THOMAS S. URIE**, Carson City, Mich. Plow-Points. Dec. 14, 1875. Filed Apr. 24, 1875.

The steel point is split to receive the wedge-shaped point of an iron plow, and recessed for the end of the share-edge. The steel parts are riveted.

Claim. The casting A, having point *a* rabbets *b b*, and the strengthening portion *c*, in combination with the angular steel point C, having upper branch *k*, and lower branch *l*, and rivets *h h*, constructed and arranged substantially as described, and for the purpose set forth.

**171,166. NORMAN G. PINNEY**, New Hudson, Mich. Plows. Dec. 14, 1875. Filed Oct. 5, 1875.

Claim. The combination of a plow-point made of an imperforated bar of steel or iron, sharpened at both ends, and with parallel surfaces on all sides, with a slotted lug secured to or cast with the land-side, and a set-screw, by means of which the point is adjustably secured and adapted to be changed end for end or side for side, as shown and described.

**172,053. WILLIAM B. READY**, Sacramento, Cal. Plow-Points. Jan. 11, 1876. Filed Oct. 16, 1875.

Dovetailed sockets and lugs for connecting the plow-point, held to place by a set screw.

Claim. The plow share having the dovetailed land-side bar C and the oblique extension or tenon D, in combination with the land-side F, having the dovetailed groove *f* and the mold board provided with the socket B, the set screw A, and the projecting lug *c* all arranged as and for the purposes set forth.

**174,449. WILLIAM H. TRISSLER**, Cleveland, Ohio. Plow-Points. Mar. 7, 1876. Filed Jan. 21, 1876.

Claim. 1. A plow-point adapted for attachment to a plow, consisting of the three pieces B C D, riveted together substantially in the manner hereinbefore set forth.

2. A plow provided with a point consisting of the three pieces B C D, riveted to each other and secured to the plow, substantially in the manner hereinbefore described, for the purpose set forth.

**175,320. ROBERT A. J. ARMSTRONG**, Knoxville, Tenn. plows Mar. 28, 1876. Filed Jan. 22, 1876.

Claim. A mold-board, having oblique sockets for share and point, in combination, with a triangular share keyed thereto, and a bifurcated point without fastening, but supported by the share, as shown and described.

**177,973. WM. H. TRISSLER**, Cleveland, Ohio. Plow-Points. May 30, 1876. Filed Apr. 7, 1876.

Claim. The hollow plow-point A, provided with side slots *a* and interior ribs *b*, in combination with an ordinary plow-point, B, provided with notches *d*, substantially as shown and described.

**182,634. JOHN W. BEVERLY,** Lisbon, Mo. Plow-Points. Sep. 26, 1876. Filed July 8, 1876.

Claim. The reversible wedge-shaped plow-point F, having oblique grooves f on its top and bottom, and notched sides, the end of the point F being provided with projection g, substantially as and for the purpose set forth.

**183,122. JOHN R. BUCHER,** Canton, Ohio, assignor of two-thirds his right to Lewis Gibbs and W. A. Wikidal, same place. Plows. Oct. 10, 1876. Filed Aug. 19, 1876.

Claim. The combination of standard A and wing A', having extension a and stud a', with share D, having recess d, bolt d', and socket d'', substantially as and for the purpose set forth.

**183,907. WILLIAM H. COOK,** Meridian, Miss. Plow-Points. Oct. 31, 1876. Filed Feb. 16, 1876.

Plowshare made with a socket for an adjustable and reversible point.

Claim. The combination of the share A, having an opening or pocket cast on its under side, thickened, as shown at d, and braced, as shown at a, with the adjustable perforated point B, connected by the bolt c, all substantially as and for the purposes herein set forth.

**186,803. W. A. CONAWAY,** Caledonia, Ohio. Plow Points. Jan. 30, 1877. Filed Sep. 23, 1876.

A slip point and share, to go upon an old one, and secured by a key.

Claim. In combination with a plowshare, A, having point B and wing J, the adjustable point G, constructed, as described, with groove a along its inner edge to fit over the point and wing, and form an upper and under lay for the share, and the key D, for fastening the adjustable point, substantially as herein set forth.

**187,659. A. L. McINTYRE,** Toledo, Ohio, assignor of one-half his right to E. G. Peckham, same place. Plow - Points. Feb. 20, 1877. Filed Jan. 20, 1877.

Claim. 1. A removable plow-share provided with the lug C, formed from a part of the same, and having the space filled by a piece, D, substantially as set forth.

2. The plow-share provided with socket I, to receive the plow-point formed by cutting away a portion of the share, and welding either a part of itself or a separate piece of metal over the cut-away portion, substantially as set forth.

**193,923. B. F. CHANDLER,** Three Locusts, Ohio. Plows. Aug. 7, 1877. Filed Apr. 25, 1877.

Claim. The point B B', having the extended V-shaped slot or groove b, recess e, and perforated projection c, in combination with the share A, beveled and tapered, as at b<sup>1</sup> b<sup>2</sup>, and recessed and stepped, as at g h, substantially as and for the purpose set forth.

**195,200. RICHARD SMITH,** Sherbrooke, Quebec, Canada. Plowshares. Sep. 11, 1877. Filed July 24, 1877.

Claim. As a new article of manufacture, a plowshare composed of steel cast-iron, united by a fusion of the surface of the steel, substantially in the manner and for the purpose set forth.

**196,232. C. W. JENKINS,** Richmond, Va. Reversible Plow-Points. Oct. 16, 1877. Filed Aug. 30, 1877.

Claim. 1. The plow-point B, having the shank C, provided with the V-shaped extension C', with concave top and bottom sides, and a mortise, d, through it, in combination with the share A, having socket D, with recess at its inner end, and the pin or key h, substantially as and for the purposes herein set forth.

2. The combination of the plow-point B, provided with the shank C, having beveled sides a, guides b, and V-shaped mortised extension C', and the share A, having socket D, with inner recess and grooves, as described, and the locking pin or key h, substantially as and for the purposes herein set forth.

**196,774. MARSHALL TURLEY,** Council Bluffs, Iowa, assignor of one-half of his right to John A. Churchill, same place. Plows. Nov. 6, 1877. Filed Aug. 21, 1877.

Claim. The combination of the blade B, bar or clamp C, bolts D D, nuts E E, and share A, all substantially as and for the purposes specified.

**197,086. M. M. BOWERS,** Richmond, Va., assignor of a part of his right to T. M. Hiltzhimer, Jr., and John P. Schermerhorn, same place. Reversible Plow-Points. Nov. 13, 1877. Filed Aug. 10, 1877.

Claim. The combination of a plowshare provided with a tapering opening vertically through it from top to bottom, and having a longitudinal groove on each wall of said opening, the wedge-shaped plow-point, having a tapering shank with a central rib on each side, and one or more spaces in the share and between the ribs for the insertion of a wedge or key, substantially as set forth.

**203,690. DAVID WOLF,** Avon, Pa. Plow-Points. May 14, 1878. Filed Mar. 5, 1878.

Claim. A reversible and invertible plow-point consisting of the double-pointed bar A, tapering from the middle to the two ends, and having opposite rabbets, one on each of its vertical sides, extending uniformly and equally toward both ends from center to shoulders d', and being provided with upper and lower opposite recesses b, the laterally-opposite recesses c, and the oppositely-countersunk oblong hole d', to adapt it for being secured to beam, landside, mold-board, and other parts of plow, as shown and described.

**205,236.** **NELSON P. BOWSHER,** South Bend, Ind. Plows. June 25, 1878. Filed Nov. 16, 1877.

Claim. 1. The combination, with the standard-foot, formed with a recessed bearing-face having raised projections about its bolt-holes within said recessed face, of the plow-point whose inner surface is made with a projection the counterpart of the recessed face of the standard-foot, and which is also formed with recesses about its bolt-holes corresponding to the raised projections on the standard-foot, the whole being adapted to interlock and bring the standard-foot and plow-point into contact with each other at all points, substantially as set forth.

2. The combination, with the standard-foot A', made with the recess E, extending over its entire bearing-surface except at the edges thereof, and having the annular projections b formed about the bolt-holes thereon, of the plow-point C, whose inner surface is made with the projection F, having the annular recesses c formed about its bolt-holes, said projection F and recesses c being adapted to interlock with the counterpart recess E and projections b, formed on the standard-foot, substantially as set forth.

**206,910.** **SAMUEL M. WHITE, and JOHN H. FRANCIS,** Salem, Va. Plow-Points. Aug. 13, 1878. Filed July 3, 1878.

Claim. In a plow-point, the combination of the upper portion, A, provided with the arrow-shaped undercut recess a, with the lower portion, B, having the arrow-shaped bevel c and the bolt C, constructed and operating substantially as described.

**207,752.** **JOHN LONG,** Massillon, Ohio. Plow-Shares or Points. Sep. 3, 1878. Filed Aug. 24, 1878.

Claim. In the share-seat of a plow, the pyramidal or V-shaped hubs b b' in combination with the corresponding recesses b' b'' in the point, the latter being fastened to the seat by a screw-bolt, substantially as and for the purpose described.

**209,406.** **PETER KESSLER,** Butler, Md., assignor of one-half his right to Thomas W. Davis, same place. Plow-Points. Oct. 29, 1878. Filed Apr. 20, 1878.

A plow-point with a separate shank, either reversible in the plow independent of the other.

Claim. The combination of the shank A, made separate from the share and reversible, and provided with the tenon a and bolt-hole c with the reversible shield B, secured on the tenon by the pin a', constructed and adapted substantially in the manner and for the purpose as herein shown and set forth.

**210,203.** **WILTON F. JENKINS and CHARLES W. JENKINS,** Richmond, Va. Plows. Nov. 26, 1878. Filed Apr. 19, 1878.

Claim. 1. The combination of the share A provided with the upper and lower recesses, h h', and the removable cutter C, provided with

the top and bottom wings or laps, F F', substantially as and for the purposes herein set forth.

2. The combination of the share A, provided with the chilled socket a and recesses h h', the reversible plow-point B with shank D and the cutter C, with the wings or flaps F F', all constructed substantially as and for the purposes herein set forth.

**211,689.** **JACOB H. BARR,** Mansfield, Ohio. Plowshares. Jan. 28, 1879. Filed Dec. 6, 1878.

Claim. A plowshare made of the plate A, slotted at g and n, and bent on the lines a c and a g around a wedge shaped block, to form a plow-point, with a socket, a fin-shaped cutter, and a share with a hook at its rear end, substantially as shown and described.

**217,898.** **JAMES OLIVER,** South Bend, Ind. Chilled Plow-Points. July 29, 1879. Filed June 26, 1879.

Claim. A plow-point having its body portion unchilled and its edge and nose chilled both upper and under sides, substantially as set forth.

**220,270.** **JAMES B. BROWN,** New York, and **JOHN PENTREATH,** Yorkers, N. Y. Plow-Points. Oct. 7, 1879. Filed July 8, 1879.

Claim. 1. The plow-point or slip B, having the shank C, placed obliquely to the point, for the purposes set forth.

2. A non-reversible plow-point provided with oblique shank, in combination with a plow-share having vertical opening for the insertion of the shank, as set forth.

3. A non-reversible plow-point constructed with oblique shank C, having parallel sides, and also having bottom lines straight and top lines slightly curved, all as herein shown and described.

4. The plow point or slip B, provided with the oblique shank C, having parallel sides in combination with the share A, having vertical slot a with parallel walls, substantially as herein set forth.

5. The point and share provided with ridges f and grooves e, made heaviest at the top, for the purposes herein set forth.

**220,373.** **LEVI W. HALL,** Syracuse, N. Y. Plow-Points. Oct. 7, 1879. Filed Aug. 29, 1879.

Claim. 1. The plow-point c, having a series of longitudinal corrugations, substantially as shown and described, whereby a firm connection is obtained and greater strength with less weight of metal.

2. The plow-point c, constructed as described, in combination with a standard or seat having corresponding corrugations, as and for the purpose set forth.

**220,649.** **JAMES OLIVER,** South Bend, Ind. Plow-Points. Oct. 14, 1879. Filed Aug. 29, 1879.

**Claim.** 1. A plow-point having the opposite sides of its edge and nose chilled, with the exception of a space on the upper side of the nose, which extends to the cutting edge thereof and a chilled seat formed on the nose in rear of such unchilled space, substantially as set forth.

2. A plow point provided with the removable die securely embedded in the nose portion of the point in casting, the upper portion of the die being flush with the upper surface of the nose, substantially as set forth.

3. The combination, with a plow-point in which the nose is re-enforced by ribs which project above the surface of the nose and edge of the point, and are pointed on their outer ends, of a false nose constructed to fit between said ribs, and suitable means for securing the false nose in place, substantially as set forth.

4. A false nose for plow-points, the upper portion of which is constructed to fit between strengthening-ribs formed on the upper surface of the nose, its outer end provided with a V-shaped recess to receive the outer ends of the ribs, while its lower portion projects beneath its upper portion to engage with the under side of the nose, substantially as set forth.

5. A plow-point provided with a ribbed nose and a chilled seat formed on the rear portion thereof, and formed with a recess,  $\beta$ , on the under side of the nose, in combination with a false nose and a fastening bolt and nut, the latter being located within the recess  $\beta$ , substantially as set forth.

**222,502. JOHN KILLEFER,** Bloomingdale, Mich. Combined Shares and Points.

Dec. 9, 1879. Filed Oct. 17, 1879.

**Claim.** As a new article of manufacture, a combined plow-share and point consisting of a wrought-iron point and a cast iron share made by heating the point to a welding heat, placing it in a mold, and casting the share onto it, substantially as described.

**223,751. JAMES OLIVER,** South Bend, Ind. Plows Points. Jan. 20, 1880. Filed Dec. 9, 1879.

**Claim.** 1. The combination, with a plow-point provided with a plain seat having beveled shoulders on its rear edge, a square shoulder on its forward edge, and a beveled recess on its under side, of a removable plow-point, the upper portion of which is provided with beveled corners at its end, a square shoulder, and a beveled tongue or lip, substantially as set forth.

2. The combination, with a plow-point provided with a plain flat seat on its nose portion, said seat having beveled shoulders on its rear edge and a square shoulder on its forward edge and a beveled recess on its under side, of a removable plow-point, the upper portion of which is provided with beveled corners at its end, a square shoulder, and a beveled tongue or lip, and a fastening-bolt extending through the plow-point and rear portion of the removable nose, the fastening-nut being located

in a recess on the under side of the plow-point, substantially as set forth.

**231,261. MARCUS M. BOWERS,** Richmond, Va. Detachable Plow-Points. Aug. 17, 1880. Filed Dec. 15, 1879.

**Claim.** 1. A detachable plow slip or point having a supporting-shank with parallel sides, adapted to fit a corresponding socket in a share, and formed with the plowing-faces  $d'$   $d^2$ , which are arranged to alternately coincide with the bottom of the share, and are situated obliquely to the parallel sides of the shank, substantially as set forth.

2. A plowshare having a horizontal sole,  $B'$ , the landside  $B$ , inclined at an oblique angle to said sole, and a socket which extends entirely through the share and has parallel lateral walls which are inclined at an oblique angle to the bottom or sole  $B'$ , substantially as set forth.

3. A reversible plow point or slip having the faces  $d'$  and  $d^2$  arranged to alternately coincide with the bottom of the share when attached, and having the shank  $E$  formed with the sides  $e^3$   $e^4$  oblique to said faces  $d'$   $d^2$ , and with ribs  $e^5$ , each of which has its upper face and its lower face inclined at different angles to the side of the shank, and has its upper face parallel to the lower face of the opposite rib substantially as set forth.

**239,135. CHARLES ANDERSON,** and **JAMES OLIVER**, South Bend, Ind., assignors to South Bend Iron Works, same place. Slip-Nose Attachments for Plows. Mar. 22, 1881. Filed Dec. 18, 1880.

The slip-nose is made reversible and its fastening end made soft or tough.

**Claim.** The combination, with a plowshare or point having grooves formed in the upper and lower sides of its nose portion, of a slip-nose provided with two jaws practically equal in length, and which fit within said grooves, and are thus furnished with extended face bearings on the web between said grooves, and with extended lateral or side bearings on the side walls of the grooves, and a fastening-bolt which extends through the two jaws and web, substantially as set forth.

**247,148. CHARLES ANDERSON,** South Bend, Ind., assignor to the South Bend Iron Works, same place. Plow-Points. Sep. 20, 1881. Filed July 5, 1881.

**Claim.** 1. A reversible slip-nose provided with arms or lips extending rearwardly from its opposite edges, substantially as set forth.

2. A reversible slip-nose having its opposite faces arranged in wedge form, and provided with two arms or lips extending rearwardly from its opposite edges, substantially as set forth.

3. The combination, with a share or point having two grooves, one on its landside edge and one on the inner edge of the nose portion of the share or point, of a slip-nose provided

with arms or lips which fit within said grooves, substantially as set forth.

**4.** The combination, with a share or point provided with grooves on opposite sides of its nose portion, of a reversible slip-nose provided with ribbed arms or lips adapted to fit within said grooves, substantially as set forth.

**5.** The combination, with a share or point, of a reversible slip-nose provided with rearwardly - extending arms or lips that fit in grooves on opposite sides of the nose portion of the point or share, and a single bolt for securing the slip-nose against displacement, substantially as set forth.

**247,439. ROBERT C. TUCKER,** La-mont, Mich. Plow-Points. Sep. 20, 1881. Filed June 27, 1881.

Claim. A plow-point formed from a blank having the broad portion B, with extension b and the narrow portion B', the edge a of both portions being continuous and the edge a' of the portion B being at an angle to edge a, as set forth.

**257,807. CYRUS YEISER,** Newmans-town, Pa., assignor of one-half to M. A. Yingst, same place. Plow-Shares. May 9, 1882. Filed Dec. 13, 1881.

Claim. **1.** The landside-bar A, having the point B, the inclined recess C, the perforated offset D, and the perforated ear, formed as described, and for the purpose set forth.

**2.** The share G, having a perforated table, b, and a tenon, c, formed as described, and for purposes set forth.

**3.** The combinaton of the bar A, its point B, inclined recess C, and perforated offset D with the share G, its perforated table b, tenon c, and bolt-fastenings, substantially as described.

**261,836. WILLIAM DICER,** Marengo, assignor of one-half to Pratt A. Spicer, Marshall, Mich. Plow-Shares and Points. Aug. 1, 1882. Filed Dec. 23, 1881.

Claim. **1.** A plowshare having a corrugated cutting-edge, and its upper surface hav-

ing a series of parallel concave grooves of variable curvatnre or width in their cross-sections, and the lower surface of said share substantially flat, as and for the purpose specified.

**2.** The combination, with a plow-point having its upper surface provided with a concave groove and its lower surface substantially flat, said groove being of variable curvature or width in its cross-section, of a plowshare having a series of similar parallel concave grooves, substantially in the manner as and for the purpose specified.

**262,927. WILMOT F. CAMERON,** Deering, assignor of two-thirds to Thomas G. Loring, Portland, Me. Plow-Points. Aug. 22, 1882. Filed Oct. 3, 1881.

The point is formed in three separable parts, comprising a main or body portion, a removable point proper, and a reversible foot, the latter having at one end a recess which engages a stud on the body portion, whereby it is secured to the outside bottom edge of said portion.

Claim. In combination with the body A, having shoulder d, projection e, and flaring stud f, the removable point B, having socket g and groove h, and the reversible foot C, having beveled recess i, substantially as described.

**266,927. WILLIAM J. TURNER,** Battle Creek, Mich. Plow-Points. Oct. 31, 1882. Filed Jan. 3, 1882.

Claim. **1.** A plow-point having its upper surface provided with a concave groove and its lower surface and sides flat, the said groove being of variable curvature in its cros.-sections, as described, and for the purpose set forth.

**2.** A plow-point having its upper surface provided with a concave groove and its lower surface and sides flat, the said groove being flared and abruptly inclined, as described, at its point, whereby the walls of the point are sharpened and at varying radii as it proceeds to the body of the point, substantially as shown and specified.





## REVOLVING MOLD-BOARDING.

| <i>Plate Claim</i> |     | <i>Plate Claim</i>        |     | <i>Plate Claim</i> |
|--------------------|-----|---------------------------|-----|--------------------|
| Blanchard, J.      | 729 | 472 Foley, D. D.          | 724 | 470 Martin, H. D.  |
| Briggs, H.         | 726 | 470 Frye, J.              | 722 | 469 Noble, W.      |
| Burdin, L. E.      | 723 | 469 Godfrey, J. S.        | 726 | 471 Norton, H. L.  |
| Cameron, W. F.     | 733 | 474 Godfrey, J. S.        | 727 | 471 Page, G.       |
| Carry, F. F.       | 725 | 470 Godfrey, J. S.        | 727 | 471 Palmer, N.     |
| Cedarland, S. N.   | 730 | 472 Godfrey, J. S.        | 728 | 471 Palmer, N.     |
| Chapman, A. R.     | 724 | 470 Godfrey, J. S.        | 728 | 472 Pettit, J. P.  |
| Dahlman, C. O.     | 734 | 474 Godfrey, J. S.        | 729 | 472 Pratt, C. A.   |
| Decker, P. H.      | 729 | 472 Green, L.             | 723 | 469 Quick, J. A.   |
| Dyer, I. T.        | 728 | 471 Harrington, W. W. and |     | Reynolds, S. G.    |
| " " "(R)           | 728 | 471 Merrill, A. B.        | 732 | 473 Roberts, M. L. |
| Dyer, C. V.        | 730 | 472 Hoyt, B. C.           | 721 | 469 Skinner, W. W. |
| Estes, W. A.       | 729 | 472 " " (A. J.)           | 721 | 469 Stanley, H.    |
| Estes, W. A.       | 730 | 472 Jefferson, T. E.      | 731 | 473 Strait, R. E.  |
| Estes, W. A.       | 732 | 473 Johnson, R. .         | 724 | 469 Swartz, R. E.  |
| Estes, W. A.       | 733 | 473 Johnson, F.           | 731 | 473 West, W. B.    |
| Estes, W. A.       | 733 | 474 Kennedy, I.           | 725 | 470 Wing, G. A.    |

## REVOLVING MOLD-BOARDS.

**2,784. HIRAM L. NORTON**, Granville, N. Y. Revolving Mold-Boards. Sep. 23, 1842.

Claim. The arrangement of the two rollers A B on the mold-board in the manner and for the purpose set forth, or in any other mode substantially the same.

**5,218. GEORGE PAGE**, Washington, D. C. Revolving Mold-Boards. Aug. 7, 1847.

Claim 1. The employment of a concave circular revolving mold-board for a plow, constructed substantially in the manner and for the purpose set forth.

2. The outer brace and scraper, in combination with the above, for the purposes set forth.

3. The employment of the friction-rollers, in combination with the revolving mold-board, substantially as above specified, for adjusting the heel of the mold-board out or in to regulate the furrow.

**15,654. BENAIAH C. HOYT**, Port Washington, Wis. Revolving Mold-Boards. Sep. 2, 1856.

Claim. The adjustable rotary mold-boards K K, combined with beam D and frame R, the whole being arranged in the manner and for the purpose set forth.

**184. BENAIAH C. HOYT**, Port Washington, Wis. Revolving Mold-Boards. (A. I.) to patent 15,654. Sep. 2, 1856. Jan. 5, 1858.

Claim. The adjustable axle H, with angular journals C H<sup>1</sup>, and adjusting arms I I<sup>1</sup>, in combination with the stirrup or standard D, rotary mold-board G, and ground propelling or driving wheel N, as and for the purpose herein set forth.

**16,913. JESSE FRYE**, Springfield, Ill. Wheel-Plows. Mar. 31, 1857.

Claim. 1. Supporting the after end of the plow-beam A upon a vertical journal at the left-hand end of the axle T, when the bearings at the opposite end of said axle are so arranged that that the position thereof may be varied and adjusted substantially in the manner and for the purpose herein set forth.

2. Arranging the bearings of the rollers e e e f and g g g in such a manner that their positions may be varied and adjusted substantially in the manner and for the purpose set forth.

3. In combination with the mold-board composed principally of the series of adjustable rollers, as herein set forth, the adjustable triangular plate w for the purpose of making the whole conform to the position in which the furrow-slice is to be laid or turned, substantially as herein set forth.

**18,609. HORATION STANLEY**, Green Township, Pa. Revolving Mold-Boards. Nov. 10, 1857.

Claim. The construction of the plow-frame with the rollers, as described, and so constructed that any number may be attached to the same axle-tree by means of the frame, Fig. 2, constructed as described, or any other substantially the same.

**18,776. WILLIAM W. SKINNER**, Davenport, Iowa. Revolving Mold-Boards. Dec. 1, 1857.

Claim. The mold-board B E, B E, B E, friction-roller M, rotary cutter a, wheels p, adjusting lever T, and seat Z, when combined and arranged and operated in the manner and for the purpose set forth.

**24,536. L. E. BURDIN**, Paris, Ky. Revolving Mold-Boards. June 28, 1859.

Claim. The arrangement of the beam M, the handles N, the standard K, brace H, share B, landside F, cone A, spindle or shaft E, braces C and G, and lug o, as described, for the purposes set forth.

**30,756. JOHN P. PETTIT**, Cold Spring, Ky. Plows. Nov. 27, 1860.

Claim. The combination of the single conical flaring roller E, colter C, sole D, curved brace F, and bar G, the said parts being constructed and arranged in the manner and for purposes set forth.

**31,712. LOURE GREEN**, Great Bend, Pa. Plows. Mar. 19, 1861.

The landside of the plow is provided with a series of friction rollers placed in a vertical position and having flanges on their lower ends. They are secured by means of bolts and screws held by nuts. On the top of the landside is a box-plate, to which the left handle of the plow is connected.

Claim. The combination and arrangement of the share N, landside L, standard S, mold-board P, friction rollers R R R, and box-plate H', the whole constructed as and for the purpose described.

**33,256. HENRY D. MARTIN**, Ypsilanti, Mich. Plows. Sep. 10, 1861.

Claim. The combination of the share A, colter G, standard J, flanges H and I, and revolving mold-board F, arranged and operating in the manner and for the purposes shown and explained.

**35,098. ROSS JOHNSON**, Frederick, Md. Plows. Apr. 29, 1862.

Claim. 1. A solid or unbroken faced mold-board, having a friction roller e, or rollers e and e', of continuous unbroken working face, and so secured centrally and longitudinally in the working face of the mold-board that said

roller or rollers shall present a flush bearing to the furrow slice as it rises upon, passes over, and falls away from the mold-board, in the manner and for the purpose specified.

2. The auxiliary turning roller  $e''$ , in combination with the friction rollers  $e$  and  $e'$ , and mold board  $b$ , in the manner and for the purpose set forth.

3. The rotary cutter  $h$ , in combination with the plow point  $F$ , extension  $g$  thereof, and mold-board  $b$ , in the manner and for the purpose specified.

4. The steady roller  $G$ , in combination with the land side  $a$ , mold-board  $b$ , plow point  $F$ , and cutter  $h$ , in the manner and for the purpose set forth.

**40,733. AARON B. CHAPMAN**, Pittsfield, Berkshire County, Mass. Plows. Dec. 1, 1863.

Claim. 1. The roller  $G$ , constructed, as shown and described, with concave sides, and mounted upon a vertical or nearly vertical shaft at the rear of the mold-board  $E$  in the manner and for the purposes specified.

2. The lever  $J$ , employed in connexion with a screw shaft  $H$  and nut  $K$ , or equivalent devices, to adjust the roller  $G$  and secure it in any position.

3. The combination with the roller  $G$  and lever  $J$  of the bracket  $I$ , constructed as described, and employed for the attachment and securing of the said lever and the handle  $A'$ , as explained.

**41,371. D. D. FOLEY**, Washington, D. C. Plows. Jan. 26, 1864.

Claim. 1. The share  $B$ , in combination with the rollers  $E E' E''$  and reversible platform  $F$ , substantially as described, for the purpose of plowing up and inverting the surface of the earth with much less friction than is commonly experienced.

2. The share  $B$  and rollers  $E$ , in combination with the revolving cutters  $C$  and colters  $K$ , or their equivalents, for the purpose of more perfectly dividing sod ground.

3. The platform  $F$ , in combination with latch springs  $G$ , the geared wheels  $H I$  and  $J$ , or their equivalents, for the purpose of rapidly inverting the sod, so that it will fall with certainty upside down, all substantially as described.

**42,631. F. F. CARY**, New York, N. Y. Plows. May 3, 1864.

Claim. 1. The roller  $D$ , when the diameter at the lower end is equal to or greater than the upper end, as shown and described, and composed of one piece or divided transversely near the middle or smaller diameter, said roller working upon a vertical or nearly vertical spindle  $S$ , substantially as and for the purpose described.

2. The roller  $D$ , as described, in combination with the toe  $C$ , scraper  $G$ , and one or both of the wheels or disks  $F F'$ , arranged and operating substantially as set forth.

**58,177. JOHN A. QUICK**, South Danville, N. Y., assignor to himself and Charles R. Holliday, same place. Plows. Sep. 18, 1866.

The point of the plow is rotated by a shaft and miter-gear connection with the supporting wheel in the rear.

Claim. The combination with the plow having mold-board and landside of the conical rotating point  $H$ , shaft  $F$ , gearing  $I M$ , and supporting wheel  $J$ , operating substantially as described.

**58,431. ISAAC KENNEDY**, Ithaca, N. Y. Plows. Oct. 2, 1866.

Claim. 1. Making the wheel at the rear end of the mold-board adjustable by means of a frame or other devices at the top and bottom of the said wheel, one or both, by means of which to evert, set on edge, throw completely over, or otherwise regulate the furrows by the use of the said wheel and frame as described.

2. The combination of the wheel, or equivalent device, and frames with the mold-board and the V-shaped handles meeting in one eye on the land-rest, the same making a whole as described.

3. The so combining together the wheel and immovable part of the mold-board, and shaping each to the other, that they shall maintain a constant relation to each other in whatever position the wheel may be placed, as described.

**62,367. M. L. ROBERTS**, Smithfield, Canada. Plows. Feb. 26, 1867.

Claim. 1. The friction-wheel  $G$ , having its axis inclined at an angle of ninety degrees or thereabouts, one bearing being attached to the beam, and the other to the heel of the mold-board, so that the two faces of said wheel bear against the side and bottom of the furrow with nearly equal force, in combination with the other parts of a plow, arranged and operating substantially as and for the purposes set forth.

2. Constructing a plow without the land-plate or side, when the same is provided with a friction-roller or rollers, which track in the furrow angle which is cut by the share, substantially as set forth.

3. The combination of the inclined wheel  $G$  with the anti-friction mold-board, composed of the series of rollers  $e e'$ , or their equivalent, arranged and operating substantially as set forth.

**71,966. HARVEY BRIGGS**, Smithland, Ky. Plows. Dec. 10, 1867.

Claim. 1. Forming the landside, mold-board frame, and upper and lower strengthening floors  $\beta^1$  and  $\beta^2$  solid in one piece  $B$ , substantially as herein shown and described and for the purpose set forth.

2. The combination of the conical rollers  $D$  and their boxing frame  $H$  with the mold-board frame  $B$ , substantially as herein shown and described and for the purpose set forth.

3. Forming the boxing frame  $H$  in two parts,

substantially as herein shown and described and for the purpose set forth.

**4.** Forming an oil trench or channel *J* in the boxing frame *H*, substantially as herein shown and described and for the purpose set forth.

**5.** The combination of the elastic washers or packing *I* with the journals and bearings of the rollers and wheels, substantially as herein shown and described and for the purpose set forth.

**6.** The combination of the adjustable friction wheel *F* and stationary friction wheel *E* with the solid landside and mold-board frame *B*, substantially as herein shown and described and for the purpose set forth.

**7.** The combination of the vertical flanged friction roller *F* with the landside of the plow, substantially as herein shown and described and for the purpose set forth.

**77,184. JOSEPH S. GODFREY,** Leslie, Mich., Revolving Mold-Boards. Apr. 28, 1868.

The mold-boards are circular, tapering blocks, and are hung so as to turn with the friction of the earth upon them.

Claim. The combination of the mold-boards *A A* with the cutters *B B*, the shares *C C*, the shafts *D D*, and the frame *E* when constructed substantially as described, for the purpose designed and set forth.

**86,615. GEORGE A. WING,** Albany, N. Y. Plows. Feb. 2, 1869.

Claim. **1.** The driving-wheel *D*, bracket *E*, brace *F*, bevel-wheels *C* and *B*, in combination with conical spirally-fluted roller *A*, plowshare *L*, and mold board *M*, all constructed and arranged substantially as and for the purpose herein set forth.

**2.** The mode of supporting brace *F* by dovetail support *d* on bracket *E*, and wedge *e* on the landside *G*, substantially as shown and described.

**92,992. WILSON NOBLE,** New Haven, Conn. Plows. July 27, 1869. Antedated July 3, 1869.

Claim. The wheel *D*, constructed with a corrugated surface, in combination with the plowshare, substantially as and for the purpose set forth.

**95,960. WILLIAM B. WEST,** Utica, Wis. Plows. Oct. 19, 1869.

Claim. The combination, with a plow, of the anti-friction-rollers *F*, shaped and arranged substantially as specified.

**98,120. RANSOM E. STRAIGHT,** Galesburgh, Mich. Plows. Dec. 21, 1869.

Claim. **1.** The slotted platform *a*, provided with a curved groove on its upper side, substantially as and for the purposes herein set forth.

**2.** The box *b* and cap *d*, constructed as described, and made adjustable upon the platform *a*, substantially in the manner and for the purposes herein set forth.

**3.** The disk *E*, provided with the shaft *c* and

rim *e*, substantially as and for the purposes herein set forth.

**4.** The combination and arrangement of the plow-beam *A*, landside *B*, handles *C C*, braces *D D*, platform *a*, box *b*, wheel mold-board *E*, and scraper *f*, all constructed as described, and operating substantially in the manner and for the purposes herein set forth,

**101,256. JOSEPH S. GODFREY,** Leslie, Mich., assignor to himself and Sears M. Loveridge, Pittsburg, Pa. Plows. Mar. 29, 1870.

Claim. **1.** In a plow or cultivator, a horizontal flange, *n'*, to which to attach the box-plate of a revolving mold board, substantially as described.

**2.** Making in the flange or box-plate two or more slots, such that, forming a point at or near the forward edge of the revolving mold-board as a center, such mold-board can be adjusted to any desired angle or pitch, substantially as described.

**3.** In combination with such mold-board and box-plate, a sand-tight box, as a bearing for the mold-board shaft, substantially as described.

**4.** In combination with a revolving mold-board, a scraper *g* attached to the box-plate, so as to be adjustable with it, substantially as described.

**105,446. JOSEPH S. GODFREY,** Leslie, Mich., assignor to himself and Sears M. Loveridge, Pittsburgh, Pa. Plows. July 19, 1870.

Claim. The arrangement, substantially as described, of a concave-faced revolving disk mold-board, in connection with a plow, whereby it shall be caused to rotate by action of the mold from the furrow, without coming in contact with the bottom of the furrow, and without the necessary use of other appliances to impart to it a rotary motion.

**112,333. JOSEPH S. FODFRY,** Leslie, Mich., assignor to himself and Sears M. Loveridge, Pittsburg, Pa. Attachments for Revolving Mold-Boards for Plows. Mar. 7, 1871.

Claim. **1.** The arrangement of the standard *d*, shank *e'*, and eye *e* with the box *n* and mold-board *m*, with suitable connections to the plow-beam, substantially as set forth.

**2.** The arrangement of the hollow standard *d* to admit the shank *e'*, with eye *a*, shank *a'*, and plow-beam *b*, substantially as described.

**113,642. ISAAC T. DYER,** Macon, Ga. Mold Boards for Plows. Apr. 11, 1871.

Claim. The skeleton mold-board, consisting essentially of the outside bars *c d* and the transverse clearing-bars *e*, in combination with the conical rollers *b*, as specified.

**5,848. ISAAC T. DYER,** Chicago, Ill., assignor to Philip H. Decker, Mold-Boards for Plows. Reissued Apr. 28, 1874. Filed Feb. 27, 1874. Patent No. 113,642. Apr. 11, 1871.

Conical anti-friction rollers placed in the wearing-surface of the mold-board; V-shaped bars extend across between the rollers for removing the soil and strengthening the mold-board.

Claim. A mold-board for plows provided with a series of rollers, three or more, in combination with the transverse clearing-bars *e* bars *c d*, and share *A*, as and for the purpose set forth.

**113,760. JOSEPH S. GODFREY,** Rochester, assignor to himself and Sears M. Loveridge, Pittsburg, Pa. Revolving Mold-Boards for Plows. Apr. 18, 1871.

Claim. A revolving, flat, plain-faced, circular disk mold-board, arranged in connection with and with reference to the lower level of the point and shin-piece, substantially as described.

**114,002. JOSEPH S. GODFREY,** Rochester, assignor to himself and Sears M. Loveridge, Pittsburg, Pa. Attachments of Revolving Mold-Boards to Plows. Apr. 25, 1871.

Claim. 1. A circular rotating scraper, combined with a revolving mold-board, substantially as described.

2. A bent spindle, capable of both lateral and rotary adjustment, as a carrier for a revolving mold-board, and in combination therewith, substantially as described.

3. The saddle-piece *g*, in combination with the slotted post *d'* and fastening-eye *e*, as a means of adjusting vertically the spindle *a* and mold-board *m*, substantially as described.

**143,279. WILLIAM A. ESTES,** China, Me. Plows. Sep. 13, 1873. Filed Apr. 28, 1873.

Claim. 1. A plow having its mold-board adjustable laterally so as to cause its rear end to incline outward from the bottom at any desired angle, and adapt it to turning furrows up hill, substantially as described.

2. The plow-frame, composed of the rigid bars *f f'*, *h k* and *s*, and hinged bars *r r'*, provided on each side with the friction-rollers *n n i i*, and adapted to admit the lateral extension or contraction of the plow at its rear end, substantially as described.

3. The combination of the hinged bar *r* with the arm *r'*, connecting it to the mold-board, the slotted plates *x x'* connecting it to the bar *k*, and the hinged slotted arm *K* connecting it to the handle, substantially as described.

**144,433. JEROME BLANCHARD,** East Siginaw, Mich., assignor of one-half his right to H. Wallace Carter, same place. Plows. Nov. 11, 1873. Filed Apr. 5, 1873.

Claim. The two sets of skeleton-wheels *A B*, forming the entire mold-board, and used in connection with the bar *D*, all constructed and arranged as shown, and for the purpose specified.

**156,283. PHILLIP H. DECKER,** Chicago, Ill. Plows. Oct. 27, 1874. Filed Mar. 21, 1874.

The curved bars, which form bearings for the friction-rollers, are pivoted in the share, and attached at their rear ends to one of the handles.

Claim. The detachable bars *E F*, arranged and combined with the plow-handle, share, and rollers, as and for the purpose set forth.

**117,785. WILLIAM A. ESTES,** China, Me. Plows. Jan. 4, 1876. Filed Dec. 17, 1875.

Sectional rollers upon the same shaft inserted in the mold-board and land-side of a plow.

Claim. The mold-board *C*, having slots of sufficient size to admit the series of anti-friction rollers *d d*, each series of rollers being upon the same shaft and of uniform size, and each roller revolving independently, in combination with the flanges *a a* and shafts *b b*, constructed substantially as and for the purpose specified.

**181,640. S. N. CEDARLAND,** Solomon Rapids, Kans. Plows. Aug. 29, 1876. Filed May 27, 1876.

Claim. The flat plow-share *F*, having an angular front edge, and the cutter *G* attached to the side thereof, the point or apex of said angle being nearer the cutter than the opposite side of the share, as and for the purpose specified.

**190,904. S. G. REYNOLDS,** Bristol, R. I. Plows. May 15, 1877. Filed Apr. 19, 1877.

Claim. 1. In a plow having the two rotary disks, *h l*, the journals *o* made to cross each other, the bearings being cast in one piece, substantially as described.

2. The two rotary disks *h l*, having their journals *o* arranged to cross each other, one journal being horizontal and the other inclined downward so as to cause the landside to act in opposition to the mold-board, substantially as set forth.

3. The concave-disk mold-board, *h*, with conical journals *o*, and provided with cogs *o'*, in combination with the convex land-side disk *l*, also provided with conical journal, and with cogs that engage with the cogged mold-board, substantially as set forth.

**191,036. CHAS. V. DYER,** Hallsville, Tex. Revolving Conical Mold-Boards. May 22, 1877. Filed Dec. 28, 1874.

Shovel-plow points, above which are fitted revolving conical mold-boards, set nearly vertical. They are geared from the axle, and revolved by the forward movement of the machine.

Claim. The combination of the endless chains *K* and *N* and the chain-wheels *J L O* with the spindles *I* of the cones *H*, with the plow-beams *D*, and with the axle *B* and wheels *C*, substantially as herein shown and described.

**205,498. N. PALMER,** New York, N. Y. Rotary Mold-Board Plows. July 2, 1878. Filed Dec. 20, 1877.

Claim. 1. In a gang of disk mold-board plows, the extended landside D of the rear plow, in combination with the short landside D' of the advance plow, and connecting spring-brace H, as and for the purpose specified.

2. The braces F F', in combination with the plow-beam and disk mold-board, fitting closely to the concave surface, thus forming both a support and a cleaner, as shown and described.

3. The supporting spring-brace, in combination with the advance plow, substantially as and for the purpose described.

**206,880. FELIX JOHNSON,** Paris, Tex. Plows. Aug. 13, 1878. Filed July 6, 1878

Claim. 1. The combination, in a plow, of a revolving mold-board, f, provided with cogs g, the vertical shaft h, having pinion i, the gear wheel o, toothed cylinder p, the cutter wheel t, substantially as described.

2. The combination of the roller j, vertical shaft h, having pinion i, and the revolving mold-board f, having the teeth g upon its inner side, substantially as set forth.

3. The combination of vertically-adjustable cutter t, toothed cylinder p, long pinion o, shaft r, and frame s, substantially as shown.

**210,201. THOMAS E. JEFFERSON,** Boston, Mass. Plows. Nov. 26, 1878. Filed Oct. 7, 1878.

Claim. 1. A plow provided with a mold-board consisting of one or more endless traveling belts, chains, or bands, ff'f', and two or more rotary rollers, e e' g g', as and for the purpose set forth.

2. In a plow, the combination of the endless apron ff'f', supporting rollers e e' g g', stay or stays i i, and adjustable brace or support k, as and for the purpose set forth and described.

**211,638. NELSON PALMER,** New York, N. Y. Rotary Mold-Board Plows. Jan. 28, 1879. Filed Dec. 13, 1878.

Claim. 1. In a machine or implement for turning the soil, the concave disk or mold-board E, provided with the convex center, G, upon its front or concave face, substantially as and for the purpose herein shown and described.

2. The combination, with a concave disk or mold-board, F, of a removable convex center, G, substantially as and for the purpose herein shown and described.

3. The combination, with the revolving disk or mold-board and the plow share and landside provided with the bottom cutting flanges m m', of the colter D, provided with the rearwardly-projecting angular flange d, and bottom cutting-flanges n n', forming forward continuations of the cutting-flanges m m', substantially as and for the purpose herein shown and described.

**212,205. WILLIAM A. ESTES,** China, Me. assignor to one-half his right to Jesse Boynton, Providence, R. I. and Charles Gilford, Gardiner, Me. Plows. Feb. 11, 1879. Filed Nov. 11, 1878.

Claim. In combination with the rolls A A, placed in the share or land-side of the plow, the friction rollers or bearings a a, supporting the former upon their periphery and permitting them to revolve, substantially as described.

**216,271. WILLIAM H. HARRINGTON,** and **ALONZO B. MERRILL,** Cambridge, Mass. Plows. June 10, 1879. Filed June 13, 1878.

Claim. A plow having two or more rows of openings in the mold-board or land side, through which project-rollers, each one of which is on a shaft by itself, and which are so set that those of one row shall alternate with those of an adjacent row, the openings being such that each roller shall be surrounded at sides and face by a portion of the fixed surface of a mold-board or landside, substantially as hereinbefore described.

**222,075. CHARLES A. PRATT,** Clinton, Mass. Plows. Nov. 25, 1879. Filed Aug. 4, 1879.

Claim. 1. The combination of the roller B lug C, cut away, as shown at c, and mold-board D, having the clearing-edge h, operating against the end of the roller, substantially as described.

2. The combination of the mold-board D, roller B, and lug C, constructed substantially as described, so that the space between the lug and the end of the roller is greater than that between the clearing-edge of the mold-board and the roller, substantially as specified.

**228,138. ROBERT E. SWARTZ,** Rock Island, Ill. Plow-Shares. May 28, 1880. Filed Apr. 5, 1880.

Claim. 1. In a plow, a conical concave roller interposed between the share and mold-board and made adjustable at one or both ends, upward and downward as well as forward and backward, substantially for the purposes herein set forth.

2. The combination, in a plow, of the separated share C and mold-board D, the connecting-braces a b, roller F, and the adjustable box I, substantially as and for the purposes herein set forth.

**230,623. WILLIAM A. ESTES,** Fairfield, Me. Plows. Aug. 3, 1880. Filed May 19, 1880.

Claim. 1. The combination, with the rollers C, each formed with an upper convex end having a journal, c', and a lower concave end having a journal, c, of the plates D D, having respectively the concave depressions and convex elevations with sockets conforming to the convex and concave ends of the rollers, substantially as described.

2. The combination of the bar E, having cross-slots h h, the carriage e', the divided spin-

dle F, with tongue and groove, as described, the keys *ff*, and the trucks or wheels, substantially as and for the purpose set forth.

**237,812. WILMOT F. CAMERON,**  
Deering, assignor to Herbert M. Sylvester,  
Portland, Me. Plows. Feb. 15, 1881.  
Filed Dec. 13, 1880.

Claim. 1. A roller, D, for a plow, consisting of an outer metallic casing and a filling of wood or other similar material, and provided with a stud-bearing, b, at the upper end, and a socket-bearing, b', set in the lower end, substantially as described.

2. In a plow, the roller D, consisting of an outer metallic casing filled with wood or other similar material, and having a stud, b, set in the upper end, and a socket, b', in the lower end thereof, in combination with the upper and lower plates, E E, said studs and sockets being adapted to support and hold in place the said roller while effectually preventing the working in of earth around the wearing parts, substantially as described.

3. The rear trucks, C C, in combination with the horizontal bars F F, the supporting-stud g on the vertical slotted plate O, and the curved upright slotted arms G G, pivoted at the lower ends, and secured above at one side by means of an adjustable fastening, substantially as and for the purpose hereinbefore described.

**252,291. WILLIAM A. ESTES,** Vassalborough, assignor of three-eighths to Andrew Webber and Hartwell B. Haskell, China, Me. Plows. Jan. 10, 1882. Filed Oct. 13, 1881.

Claim. 1. An anti-friction roller for plows and other cultivators, having ends of its journal, shaft, or pivot loosely inclosed in a movable nipple, which is adapted to revolve in its bearing for the purpose of diminishing wear, all the parts being constructed and arranged substantially as specified.

2. The combination, with the mold-board and landside of a plow having bearings e f and slots h, of the rollers a, arranged toward the rear side of said slots, and provided with recesses or journal-boxes c, and the movable nipple g, placed loosely within said journal-boxes and surrounding the journals of the rollers, substantially as and for the purpose set forth.

3. The combination, with a plow-frame, of the adjustable roller a', having its journals inclosed in nipples g, and provided with a rod or bar, k, substantially as described.

**263,122. CARL O. DAHLMAN,**  
Willis, Tex. Plow Mold-Boards. Aug. 22, 1882. Filed Apr. 26, 1882.

Claim. 1. The combination, with the mold-board c, provided with the transverse parallel slots i i, with the belt supporting piece o between them, and scrapers m m, of the rollers k k, journaled in the ends of the slots, endless apron l, and guards n n, substantially as described, and for the purpose set forth.

2. The combination of the mold-board c, provided with the circular roll e, having belt h, slots i i, belt-supporting piece o between them, scrapers m m, rollers k k, endless apron l, and guards n, substantially as described, and for the purpose set forth.







## RIDGERS.

|                 | <i>Plate</i> | <i>Claim</i> |                | <i>Plate</i> | <i>Claim</i> |                   | <i>Plate</i> | <i>Claim</i> |
|-----------------|--------------|--------------|----------------|--------------|--------------|-------------------|--------------|--------------|
| Angamar, E. H.  | 742          | 485          | Gross, G. Jr.  | 741          | 485          | Shares, D. W.     | 741          | 485          |
| Chandler, M.    | 742          | 485          | Martin, A. D.  | 745          | 487          | Snyder, J.        | 743          | 486          |
| " " "(R.)       | 742          | 485          | Mason, T. J.   | 744          | 487          | Webb, A.          | 743          | 486          |
| Chandler, M.    | 746          | 487          | Meixell, G. W. | 745          | 487          | " " (R.)          | 743          | 486          |
| Clements, G. M. | 743          | 486          | Notman, W.     | 744          | 486          | Whittemore, J. R. | 745          | 487          |
| Culver, D.      | 745          | 487          | Notman, G.     | 744          | 487          | Wolf, D.          | 741          | 485          |
| Gardner, C.     | 742          | 485          | Parmley, E. L. | 746          | 487          |                   |              |              |
| Goslee, O. W.   | 744          | 487          | Schubert, M.   | 746          | 487          |                   |              |              |

## RIDGERS.

5,800. **GEORGE GROSS, Jr.,** German-town, Ohio. Ridge-Plows. Sep. 26, 1848.

Claim. The so combining and arranging of the wings of my cultivator with the supporting-frame that their posterior extremities can be brought nearer to or separated farther from each other and the rows of corn, &c., to be cultivated thereby without varying the angle of inclination of the wings with each other, substantially in the manner and for the purposes herein set forth.

7,315. **DAVID WOLF,** North Lebanon, Pa. Ridge-Plows. Apr. 23, 1850.

Claim. Increasing or diminishing the angle of the plows with the central line of draft by shifting the screws K K' to the holes *c* in the plows and the screws L L' to the other holes in the beams C C without changing the position of the shanks J J', and braces M M', by which more or less earth may be thrown toward the row of plants under culture, as described.

12,075. **DANIEL W. SHARES,** Hamden, Conn. Ridge-Plows. Dec. 12, 1854.

Claim. 1. Connecting the wings or shoes *a* to each other and to the frame of the machine in such manner that they are made capable of universal adjustment, by hanging them so that they may be turned on extension bars or rods, *e*, projecting horizontally from the rear hinge, *c*, and uniting them together, or otherwise equivalently hanging and connecting them, so that the wings or shoes may not only be expanded or contracted to vary their width apart, but may also have their depth of entry into the ground and angular set in direction of their depth varied to suit various widths of the wings apart and various conditions of the soil or other controlling circumstances, substantially as specified.

2. The arrangement of the leveling or finishing plate *L*, operating in rear of the covering portions of the wings to slightly flatten the tops of the rows and give a neat and substantial finish to them, as set forth.

29,842. **E. H. ANGAMAR,** New Orleans, La., assignor to himself and Tobias Marcus, New York, N. Y. Cane Coverers. Aug. 28, 1860.

This invention consists in arranging on the two sides of the frame of a plow two mold-boards, with adjustable wings for throwing the earth towards the center line of the plow, and following them by an adjustable scraper to regulate and render equal the depth of earth applied by the covering mold-boards.

Claim. The combination and arrangement of the twin adjustable covering plows P P, with the adjustable scraper S, substantially as and for the purpose specified.

31,710. **CHARLES GARDNER,** Hoosick, N. Y. Cultivators. Mar. 19, 1861

Two parallel bars are connected together by V-shaped cross pieces, so as to pass over plants, one of the pieces being connected to the bar by a screw passing through a slotted plate for the purpose of lateral adjustment. Wings are also connected with the side-bars, and admit of adjustment in an oblique position.

Claim. The parallel bars A A, jointed handle-brace D, wings F, provided with sliding or extension plates G, and the V-shaped cross-pieces B B, all combined and arranged for joint operation, as and for the purpose set forth.

34,128. **MOSES CHANDLER,** East Corinth, Me. Horse Hoes. Jan. 14, 1862.

Claim. 1. Attaching the wings H H of the implement to the beam A, by means of the rod I J, which are fitted in the eyes *g*, at the end of bolts K, in the beam, in combination with the joints *h*, which connect the front ends of the parts *d* of the wings to the rods I, and the slot *i*, in the lower parts of the rods J, through which the bolts *f*, at the back ends of the parts *d*, pass, whereby the wings may be adjusted, as and for the purposes set forth.

2. Forming the wings H H of two parts *d e*, connected together by a pivot or bolt *f*, for the purpose specified.

3. The adjustable and yielding cultivator blades F, when arranged as shown and used in connexion with the wings H, for the purpose set forth.

4. In combination with the wings H, attached to the beam A, as shown, the stay rods L, and adjustable bolt M, arranged as shown, to insure the proper bracing of the wings H, at all points of their adjustment, as described.

2,808. **R. B. DUNN and JOHN C. FLINT,** Bangor, assignees by mesne assignments of Moses Chandler, East Corinth, Me. Horse Hoes. Patented Jan. 14, 1862 Reissued Dec. 3, 1867.

Claim. 1. The employment of two shares converging towards their rear, and made capable of adjustment to or from each other, either at their front or rear, or both.

2. Attaching or jointing the forward ends of these shares to their supporting rods as that they may be turned and adjusted thereon as centers, more or less obliquely relatively to the beam.

3. The means, substantially as described for, adjusting vertically the rear ends of the shares to vary the depth of their penetration into the earth.

4. The combination with the shares of pivoted wings, extending rearwards therefrom.

5. So connecting the wings to the shares as that they will partake of their vertical adjust-

ments, and also admit of being thrown up out of action when not needed.

6. A wing constructed with a slightly concave curvature on its under side, to round up the earth as the furrow is covered.

7. Supporting the shares upon bent rods capable of being adjusted laterally in the devices which hold them in position.

8. Supporting the shares, both at front and rear, upon such rods to admit of either end being adjusted relatively to the other.

9. So supporting the shares by means of rods and adjusting devices that they may be lowered or raised, either at their front ends or at their rear ends, at option or at both, substantially as shown and described.

10. Securing, adjustably, steadyng the share-supporting rods to the beam by means of screw-threaded eyes or loops or nuts.

11. The adjustable and yielding cultivator blades adopted to be lifted and thrown out of action when desired.

12. The means, substantially as described for adjusting the cultivator blades and their supports to or from each other, without unfastening them from the bars to which they are secured.

13. Forming in one piece the cultivator blade support, and the coiled spring which sustains it, and admits of its various movements substantially as described.

14. The provision in the beam of a slot J, as and for the purpose described.

15. The adjustable stay rod, as and for the purpose described.

16. The combination with the stay rods which brace the shares of the slot in the beam and means for firmly securing the rods in variable positions, substantially as described.

**36,894. G. M. CLEMENTS,** Kenduskeag, Me. Cultivators. Nov. 11, 1862.

The frame of this device is composed of three bars  $\alpha\alpha\alpha'$ , the central one of which is hinged or jointed at its front end to a rod, the two others being also hinged to the same rod, and the three are connected by transverse rods fitted with screw-threads and nuts, by which means the bars may be securely adjusted nearer to or further from each other.

To the outer side of each of the said bars are attached curved bars E' extending downwards and terminating in forks in which rollers are placed.

Claim. The frame A connected with the draught pole D, as described and composed of three bars  $\alpha\alpha\alpha'$  connected together by the rods d'd, and arranged as shown, so that the bars  $\alpha\alpha$  may be adjusted nearer together or further apart as desired; in combination with the shares F F and adjustable rollers / /, all arranged substantially as and for the purpose herein set forth.

**49,354. ALBION WEBB,** assignor to himself and D. M. Dunham, Bangor, Me. Horse Hoe Cultivators. Aug. 8, 1865.

Claim. 1. The manner in which the plates E E are secured to the cross-bars B B, of the machine, to wit, the oblong grooves  $a$  in said bars B B, with notches e at their under surfaces the covered rods F, and eye bolts G, all arranged in the manner substantially as and for the purposes specified.

2. The securing of the blades H to the plates E, by means of a single bolt  $a$ , in connection with the ribs b, and grooves c, substantially as shown and described.

**2,812. R. B. DUNN and JOHN C. FLINT,** Bangor, Me., assignees by mesne assignments of Albion Webb, same place. Horse Hoe Cultivators. Patented Aug. 8, 1865. Reissued Dec. 17, 1867.

Claim. 1. Securing the share to a plate in such manner as to be readily removed therefrom or secured thereto, substantially as described.

2. The employment of teeth or cogs as a means of adjustment, and holding in position a movable blade, substantially as described.

3. Providing a wing or blade, and the part to which it is connected, with a rib in one and a series of notches or grooves in the other, to set and hold the blade in position.

4. In combination with such rib and notches a bolt and nut, or their equivalents, to loosen and tighten the same, as described.

5. Supporting the forward ends of the share-supporting plate by means of screw-threaded rods entering screw-threaded eyes on the plate to admit of lowering or raising the share, substantially as shown and described.

6. Providing the cross-bars with slots, or their equivalents, as and for the purpose described.

7. Providing the cross-bars with notches to receive the eyes of the loops, which secure the share-supporting rods in the desired positions.

8. The curved support D, made of a single block, when constructed and applied as and for the purposes described.

**72,104. JOHN SNYDER,** Williamsfield, Ohio. Corn Plows. Dec. 10, 1867.

The verticle inclination of the tongue to the main beam is adjustable at the front end of the latter. The upright on the beam enters a mortise in the tongue and may be raised from the beam and retained by a transverse bolt.

Claim. The combination of the tongue H, strap L, and upright K with the forward end of the central beam A, substantially as herein shown and described and for the purpose set forth.

**84,437. WALTER NOTMAN,** Deerfield, Ohio. Corn and Potato Plows. Nov. 24, 1868.

Claim. The mold-boards G, of the twisted and bent form, as shown, combined and arranged with the V-shaped frame A, cross-pieces H, uprights D, and braces C L I, which parts are firmly secured to each other, as herein rep-

resented and described, and for the purpose specified.

**84,957. THOMAS J. MASON,** Harmony, Me. Plowing Hoes. Dec. 15, 1868.

Claim. 1. The top frame A B C and the side frames D E F, constructed and adjustably combined with each other, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the adjusting lever braces J with the side frames D E F and pivoted scrapers I, substantially as herein shown and described, and for the purpose set forth.

3. The combination and arrangement of the hinged tongue K, loop or keeper L, adjustable wedge block M, and braces N with each other and with the frame A B C, substantially as herein shown and described, and for the purpose set forth.

**87,356. GEORGE NOTMAN,** Deerfield, Ohio. Hilling-Plows. Mar. 2, 1869.

Claim. The shares E E, constructed and arranged as described, and connected with the handles D D and beam A by means of the braces F G G, substantially as herein set forth.

**106,810. OZIAS W. GOSLEE,** Glastenbury, Conn. Tobacco-Ridger. Aug. 30, 1870.

Claim. The combination of the shear-plates a a, flattener g, and dividing and marking-wheel h, substantially as and for the purpose set forth.

**128,860. DAVID CULVER,** Kingston, Pa. Cultivators. July 9, 1872.

The slots e e allow the plow to be made narrow or wide, and also the points of the moldboards to be turned in any desired position so as to plow toward or throw the earth away from a row.

Claim. The block m fitting in the cross-beam d and upon each side of the tongue h, and held in place by suitable clamp-bolt, substantially as and for the purpose set forth.

**132,405. GEORGE W. MEIXELL,** Hecktown, Pa. Corn-Plows and Markers. Oct. 22, 1872.

The tongue, loosely pivoted at its rear end, has vertical movement only in a keeper or strap; and to relieve the horses' necks from weight is held up by rods attached in front to the double-tree bolt and in rear to the plow-standards.

Claim. The plow-tongue E, vertically movable in keeper F on cross-bar D, and provided with double-tree G, combined with plate H and draft-bars I I, the latter pivoted to the plow-standards B, as described, to give a concentered draft.

**142,753. JOHN R. WHITTEMORE,** Chicopee Falls, Mass. Tobacco-Ridgers. Sep. 9, 1873. Filed June 6, 1873.

Claim. 1. In a tobacco-ridger, the sides or

shear-plates A A, when their rear ends are made adjustable out or in, as well as their front ends, substantially as and for the purposes herein set forth.

2. The combination of the perforated standards h h and flange i, formed on or attached to the bar B, the wheel G, and frame or rods f, substantially as and for the purposes herein set forth.

3. The combination of the sides or shear-plates A A, made adjustable at both ends, bars B C, and the adjustable wheel G, attached rigidly to the machine, all substantially as and for the purposes herein set forth.

**179,933. A. D. MARTIN,** Abbeville, La. Ridge-Forming Machines. Jan. 18, 1876.

Filed May 22, 1876.

Plows for throwing the dirt inward, to be pressed by inclined rollers into a ridge. The plows and rollers are raised from the ground by depending arms carrying bearing-wheels.

Claim. 1. The combination of the plows B C and the two inclined rollers D with each other, and with the frame A, substantially as herein shown and described.

2. The combination of the wheels I, the drow-bars J, the standards K, the cross-bar L, and the lever N, with the frame A, to which the plows B C and the inclined rollers D are attached, substantially as herein shown and described.

**211,701. MOSES CHANDLER,** East Corinth, Me., assignor to John G. Mayo, and Josiah B. Mayo. Horse-Hoes. Jan. 28, 1879. Filed Aug. 30, 1878.

Claim. In a horse-hoe, the combination of the cross-bar a, having slots f f, standard b, having slot e' and notches e, yoke d, and nuts h h, substantially as set forth, for the described purposes.

**235,576. MAURICE SCHUBERT,** Dover, Ky. Tobacco and Plant Hillers. Dec. 14, 1880. Filed Apr. 10, 1880.

A cultivating and ridging machine for preparing the land for planting, comprising cultivating teeth, ridging plows, a leveling scraper with teeth, and a roller to divide the ridge into hills and mark their centers.

Claim. 1. In a tobacco-hilling machine, the scraper F, having adjustable teeth, as specified.

2. In a tobacco-hiller, the herein-described cylinder, formed with transverse ribs K, and having the pins L, substantially as set forth.

**239,835. ELMER L. PARMLEY,** Center, Wis. Tobacco-Hillers. Apr. 5, 1881. Filed Aug. 2, 1880.

A ridger composed of two diamond-shaped sections connected adjustably by slotted cross-bars, the forward parts of the sections having harrow-teeth for clearing and preparing the soil and the rear parts constructed so as to form the prepared soil into ridges. Rear con-

## RIDGERS

concave rollers smooth the ridges and leave them in a convex form.

Claim. A tobacco-hiller composed of right and left sections A A, adjustably connected together by means of slotted cross-bars e f g, the beams a a, provided with harrow-teeth, beams b b of the rear half of said sections

standing edgewise in the form of runners, the rear ends being drawn together partially and adapted to form the soil into ridges, in combination with concave rollers C C, cross-bar F, bifurcated lever s, and cross-piece i, substantially as described, and for the purposes specified.



**ROTARY.**

| <i>Plate</i>                      | <i>Claim</i> | <i>Plate</i> | <i>Claim</i>               | <i>Plate</i> | <i>Claim</i> |                             |     |
|-----------------------------------|--------------|--------------|----------------------------|--------------|--------------|-----------------------------|-----|
| Adams, J.                         | 800          | 517          | Gatling, R. J.             | 761          | 502          | Roberts, E. B.              |     |
| Andrews, W. J.                    | 779          | 510          | Gedney, G. W. B.           | 757          | 500          | Rouse, T.                   |     |
| Atwater, J. B.                    | 765          | 503          | Goddard, E. G.             | 823          | 526          | Royse, P. E.                |     |
| Austin, J.                        | 804          | 519          | Gordon, E.                 | 762          | 502          | Russell, D.                 |     |
| Austin, J.                        | 817          | 524          | Grabo, C. G.               | 763          | 503          | Sackett, C. E.              |     |
| Badger, N.                        | 761          | 502          | Graner, J.                 | 801          | 517          | Sackett, C. E.              |     |
| Badlam, E.                        | 768          | 504          | Haggard, J. W. and Bull,   |              |              | Sackett, C. E.              |     |
| Batcheller, A. F.                 | 791          | 514          | G.                         | 753          | 499          | Sackett, C. E.              |     |
| Batcheller, A. F.                 | 793          | 515          | Harris, E.                 | 758          | 501          | Sackett, C. E.              |     |
| Baucum, S. C.                     | 819          | 525          | Haynes, J.                 | 797          | 516          | Sackett, C. E.              |     |
| Belmont, H.                       | 782          | 511          | Hesselbom, E. M.           | 789          | 513          | Sackett, C. E.              |     |
| Berkstresser, H.                  | 772          | 506          | Hewit, S.                  | 762          | 502          | Sackett, C. E.              |     |
| Berninger, O.                     | 775          | 508          | Hoadley, J.                | 704          | 503          | St. John, G. B. and Under-  |     |
| Bleeker, W. E.                    | 784          | 512          | Hoffmeyer, A. B. and       |              |              | wood, J. R.                 |     |
| Bleeker, W. E.                    | 790          | 513          | Schmidt, J.                | 788          | 513          | Schuchard, J.               |     |
| Bodley, J. W.                     | 817          | 524          | Hornighouse, L.            | 781          | 511          | Schultz, J. D. and Adams,   |     |
| Bodley, J. W.                     | 818          | 524          | Hopkins, G. E.             | 799          | 515          | R.                          |     |
| Bondell, A.                       | 779          | 510          | Hutfer, L.                 | 819          | 524          | Seoville, T. S.             |     |
| Bootswick, E. E.                  | 818          | 524          | Hurd, J. B.                | 823          | 526          | Shabley, C.                 |     |
| Bourne, E.                        | 780          | 510          | Hyde, W. B.                | 785          | 512          | Sherman, D. B.              |     |
| Bowen, H. W.                      | 783          | 511          | Johnson, M.                | 780          | 510          | Sherwood, J.                |     |
| Bredden, C. C. and Wheeler, O. F. | 800          | 517          | Johnson, H. M.             | 753          | 499          | Sivertsen, B. E.            |     |
| Broadnax, D. W. Sr.               | 795          | 515          | Johnson, J. G.             | 795          | 503          | Skilling, H.                |     |
| Burch, T. W.                      | 778          | 509          | Johnston, C.               | 824          | 527          | Somat, L.                   |     |
| Bussell, E. I.                    | 772          | 506          | Jones, J. G.               | 788          | 513          | Spencer, H. H.              |     |
| Bussell, E. I.                    | 755          | 500          | Jones, H. and Vard, W. K.  | 790          | 514          | Spofford, M.                |     |
| Bussell, E. I.                    | 783          | 511          | Inold, N. T.               | 781          | 511          | Standish, P. H.             |     |
| Bussell, E. I.                    | 784          | 512          | Kent, E. H.                | 775          | 508          | Stanley, H.                 |     |
| Cagwin, I. L.                     | 775          | 508          | Kershner, I. A.            | 707          | 510          | Starritt, J. D.             |     |
| Chamberlain, W. H.                | 773          | 507          | Kyle, I. N.                | 818          | 524          | Stebbins, L.                |     |
| Chenoweth, J.                     | 779          | 510          | Lane, D. H.                | 803          | 518          | Stephens, A. J.             |     |
| Colborn, T. H.                    | 709          | 505          | Locke, D.                  | 801          | 517          | Stevens, T. S.              |     |
| Cole, J. L.                       | 703          | 503          | Lynch, G. F.               | 775          | 508          | Stevens, J.                 |     |
| Comstock, C.                      | 759          | 501          | McClay, F. H.              | 813          | 522          | Stevens, L.                 |     |
| Comstock, C.                      | 702          | 502          | McDonald, J. E.            | 783          | 505          | Stickney, B. F.             |     |
| Comstock, C.                      | 705          | 503          | McDonell, A. S.            | 787          | 513          | Stoddard, J. C.             |     |
| Cone, F. C.                       | 777          | 506          | McKinley, R.               | 787          | 512          | Stone, J. C.                |     |
| Coon, J. H.                       | 703          | 514          | Mallon, J.                 | 802          | 518          | Stoner, A. F.               |     |
| Cooper, G. W.                     | 774          | 507          | Mann, D.                   | 760          | 502          | Tally, T. J.                |     |
| Cochran, A. J.                    | 823          | 526          | Martin, L.                 | 801          | 517          | Taphin, H. T.               |     |
| Crane, I. C.                      | 701          | 502          | Mathes, W. Met.            | 798          | 516          | Larmatzer, J. P.            |     |
| Crafts, A. and Weeks, E.          | 752          | 499          | Mears, W. R.               | 708          | 504          | Thompson, A.                |     |
| Cravath, M. A. and I. M.          | 771          | 506          | Milroy, J. W.              | 773          | 507          | Thompson, J.                |     |
| " " " (R)                         | 772          | 506          | Milroy, J. W.              | 786          | 512          | Tilley, J. R.               |     |
| Crossby, W. F. and Carey, A.      | 821          | 525          | Miles, O. E.               | 819          | 525          | Tranter, J., Kinsey, J. and |     |
| Daniels, C. J.                    | 804          | 520          | Miles, E. M.               | 820          | 525          | Carr, J. M.                 |     |
| Dawson, W. J.                     | 778          | 510          | Moody, L.                  | 776          | 508          | Truard, A.                  |     |
| Decelle, M.                       | 783          | 511          | Morris, J. R.              | 782          | 511          | Futhill, T. J.              |     |
| Densmore, J.                      | 772          | 506          | Myers, D.                  | 709          | 505          | Uehling, T.                 |     |
| Eckles, H. P.                     | 774          | 507          | Newson, G. S.              | 780          | 510          | Underwood, J. K.            |     |
| Elliott, J. C.                    | 790          | 513          | Nichols, W. W.             | 709          | 517          | " " (R)                     |     |
| Elliston, C. T.                   | 787          | 513          | Nusbaum, A. v. C.          | 779          | 510          | Underwood, J. K.            |     |
| Evans, O. C.                      | 754          | 499          | Palmer, N.                 | 803          | 518          | Underwood, J. K. and St.    |     |
| Fiecrabend, J.                    | 820          | 525          | Peek, E.                   | 754          | 500          | John, G. B.                 |     |
| Fenley, G. W.                     | 793          | 514          | Pedrick, R. R.             | 808          | 521          | Naughn, J. and Charness, E. |     |
| Field, G. B.                      | 752          | 499          | Pelser, P. D. and H. C.    | 798          | 516          | Von Phul, H. Jr. and Mal-   |     |
| Field, B. F.                      | 757          | 501          | Puring, G.                 | 821          | 525          | lon J.                      |     |
| Field, B. F.                      | 756          | 500          | Pitkin, J. H.              | 780          | 513          | 791                         | 514 |
| Fifthian, L. S.                   | 705          | 503          | Platt, H. M.               | 755          | 500          | Wadsworth, W.               |     |
| Fifthian, L. S.                   | 707          | 504          | Pomeroy, H. A. G. and      |              |              | 793                         | 503 |
| Fitzgerald, J. C.                 | 771          | 505          | Hudson, R. F.              | 759          | 501          | West, B. J.                 |     |
| Forsgard, G. A.                   | 785          | 512          | Poundstone, C. N.          | 785          | 512          | Wetherell, L.               |     |
| Foster, C. R.                     | 809          | 521          | Quimby, W. F.              | 760          | 502          | Whitehead, J.               |     |
| Foy, W. H.                        | 792          | 514          | Quimby, W. F. and Lob-     | 762          | 502          | Winters, E. C.              |     |
| Foye, W. H.                       | 799          | 515          | dell, G. G.                |              |              | 793                         | 514 |
| Fraser, E. J.                     | 770          | 505          | Quimby, W. F. and Lob-     | 770          | 505          | Zimmerman, J.               |     |
| Fraze, L. F.                      | 782          | 511          | dell, G. G.                | 787          | 512          | Woodbridge, S.              |     |
| Freeborn, W.                      | 799          | 517          | Randolph, J. H. Jr.        | 787          | 512          | Young, J.                   |     |
| Garver, A. A.                     | 738          | 501          | Rice, F., Apple, A. and M. | 818          | 524          | 757                         | 501 |
| Gatling, R. J.                    | 758          | 501          | Richardson, W. C. B.       | 794          | 515          | Zimmerman, J.               |     |
|                                   |              |              | Roach, L.                  | 755          | 500          | 754                         | 499 |

## ROTARY.

**BENJAMIN F. STICKNEY**, Vestula, Mich. Steam Plows. Mar. 1, 1834. No claim.

Motion is communicated to cylinder carrying hinged or pivoted knives, by cogged gear on one of the bearing wheels imparting to the knives a draw cut.

**5,290. MOSES SPOFFORD**, Georgetown, Mass. Steam Plows. Sep. 11, 1847.

Claim. The combination of one or more of the cross-pieces U V and their rods or other equivalents with the rotary hoes, the same being used in manner and for the purpose above described.

**5,665. J. YOUNG**, Jefferson, Me. Rotary Cultivators. July 11, 1848.

Claim. 1. The combination substantially as herein set forth of the several series of spades or plow plates e e with the cutter wheels A A.

2. The manner of operating the spades or plow plates by means of the arms m and n n, projecting from each plow bar D, the stop f descending from the axletree, the elastic arms r r, radiating from the rings d d, secured to the inner sides of the wheels and the pins s s, projecting from the inner sides of the wheels substantially as herein set forth; not intending by this claim to limit myself to the exact number, proportion and arrangement of plows or spade plates as herein set forth and represented, but shall vary the same as I may deem expedient, whilst I attain the same end by substantially the same means.

**6,091. T. J. TUTHILL**, Elmira, N. Y. Rotary Cultivators. Feb. 6, 1849.

Claim. The rotary cutters K K, and screw shaft I J, in combination with the wheel and handle shafts, arranged in the manner and for the purpose herein described.

**6,997. A. CRATTS and E. WEEKS**, Auburn, Ohio. Steam-Plows. Jan. 8, 1850.

Claim. The combination of the levers D, roller A, and driving-wheel G, in the manner and for the purpose set forth.

**8,747. PLEASANT E. ROYSE**, New Albany, Ind. Steam-Plows. Feb. 17, 1852.

Claim. The construction of the teeth on the main or driving wheels of a chisel-formed bevel, that is to say, one face being a continuation of the line or plane of the radius of said wheel, while the other face is beveled to meet it at an angle somewhat less than forty-five degrees, for the purpose of striking into and taking a firm hold of the ground, in a manner and for the purpose set forth.

**10,624. G. B. FIELD**, St. Louis, Mo. Rotary Cultivators. Mar. 14, 1854.

Claim 1. The arrangement of the shield

plates P and Q, on the shaft L, for the purpose set forth.

2. The arrangement of the rotary harrows B B, sustained above the ground and in the rear of the cultivating cylinder for breaking and pulverizing the falling earth as set forth.

**11,162. H. M. JOHNSON**, Carlisle, Pa. Rotary Cultivators. June 27, 1854.

Claim. A system of sharpened disks or rotary colters, a part of which are armed upon their peripheries with knives projecting laterally; said knives being set obliquely to the radius of the disks, as above described, the whole being combined and arranged in three several sets, so that the two sets armed with knives shall cut alternate sections of the soil, substantially as set forth.

**12,387. J. W. HAGGARD and GEO. BULL**, Bloomington, Ill. Steam-Plows. Feb. 13, 1855.

Claim. The arrangement and combined operation of the plows I I I I, cutters J J J J, and semi-circular way K, substantially as and for the purposes herein specified.

**12,466. DAVID RUSSELL**, Drewsburg, Ind. Spade Plows. Feb. 1855.

Claim. The cutter-bars A A', said bars being provided with cutters at their lower ends, and operating in the manner and for the purpose described and set forth.

**15,453. J. ZIMMERMAN**, Oswego, Ill. Rotary Cultivators. July 29, 1856.

Claim. The revolving rake and cleaner, in combination with the series of elastic cutters i, and flat cutters C, as set forth.

**16,007. ORMROD C. EVANS**, Stan-town, Ohio. Spading Machines. Nov. 4, 1856.

Claim. The combination of a series of forks or spade blades with an endless chain, and with a drum and rollers arranged in such order upon a carriage that by the progressive onward motion of the machine the said spaded or forks will at first be forced by a direct, or nearly direct, thrust into the ground, and afterward in the act of being lifted by the chain out of the ground shall be made to turn at such short angle with the surface, as will cause the breaking and upheaval of the ground, substantially as described.

**17,467. JESSE WHITEHEAD**, Man-chester, Va. Rotary Cultivators. June 2, 1857.

Claim. In combination with the colter E, and mold-boards G, which scrape off and smooth the sides of the furrow, and serve to guide and direct the machine along said furrow, the horizontal plate F, which shoves off

the top of the furrow and receives all the excess of earth, and the distributors H, for scattering the earth therefrom, so as not to leave it in ridges, the whole being combined and operating together, substantially in the manner and for the purpose set forth.

**18,600. EZRA PECK,** Deer Park, N. Y.  
Digging Plows. Nov. 10, 1857.

Claim. The colter g and its horizontal share 7, in combination with the cylinder k of teeth l, the whole constructed and acting substantially as specified.

**18,939. LORIN WETHERELL,** Worcester, Mass. Rotary Cultivators. Dec. 22, 1857.

Claim. In combination with a plow H, the pair of revolving hoes or scrapers, having a vertical adjustment in addition to the adjustment of the edges thereof, so that the capacity of the machine may be increased with the increasing height of the plants to be cultivated by it, substantially as set forth.

**19,652. L. ROACH,** Covington, Ky.  
Rotary Cultivators. Mar. 16, 1858.

Claim. The described arrangement of spiral splines G, (to which the plows are attached) and adjustable arms F f, in combination with gravitating shaft E and gauge wheels L, as described and shown.

**20,605. E. T. BUSSELL,** Shelbyville, Ind., assignor to Wombaugh Brothers & Co., Cincinnati, Ohio. Rotary Cultivators June 15, 1858.

The nature of my invention consists in providing a hollow revolving drum, out of the surface of which projects any desired number of spiral, twisted, or otherwise shaped cutters arranged at suitable distances from each other, to each of which a rotary motion is communicated, as said hollow drum revolves upon its axis, by means of fixed cogged master-wheels within the drum, into which small cog-wheels play as they are carried around by the drum.

Claim. The arrangement of machinery, substantially as herein set forth, for breaking up and disintegrating the earth for the purposes of agriculture.

**20,659. HENRY M. PLATT,** Darien, Conn. Cultivators. June 22, 1858.

Claim. The arrangement of the screw-shaped plow-share A, having wings E, with boxes H and F, wheels I, and roller D, the whole being constructed and operating conjointly in the manner and for the purpose set forth.

**21,377. NATHANIEL S. SMITH,** Buffalo, N. Y. Rotary Cultivators. Aug. 31, 1858.

I do not claim the flanged or broad cutting cylinder, nor placing a gang of holes behind such cylinder the combination of the comb frame clearer with such cylinder.

Claim. The use of the double joint piece D, to connect the gang of holes to the axle,

when said joint piece extends beyond the axle, and subserves also the purpose of a foot lever to throw the hoes out of the ground, in the manner and for the purpose set forth.

**21,803. JUDD STEVENS,** Marengo, N. Y., assignor to self and J. L. Beadle, same place. Spading Machines. Oct. 12 1858.

Claim. 1. Jointing or hanging the spade k to the wheel A in such a manner that in the forward motion of the machine it will remain in proximity with the periphery of the wheel until the lifting of the earth commences, when it shall pass outward or slide upon its bearing, thereby acting more efficiently to raise and disintegrate the soil, substantially in the manner and for the purpose set forth.

2. The combination and arrangement of the tripping-lever H with the spade k, substantially as and for the purpose herein described.

**21,857. THOS. S. STEVENS,** Pepperell, Mass. Rotary Cultivators. Oct. 19, 1858.

Claim. The combination of a set of vertical stripping-cutters, a a, and a set or series of revolving under surface-cutters, b b, applied to operate together, substantially as specified.

**22,496. GEORGE B. FIELD,** St. Louis, Mo. Spading Machines. Jan. 4, 1859.

Claim. Propelling the shovels H by means of single cranks G, attached to handles X, and guided by adjustable arms or levers L, so that the lower end of the shovels when in motion shall run in separate lines or furrows, the whole being constructed, arranged, and operating substantially as described.

**22,867. GEORGE W. B. GEDNEY,** New York, N. Y. Rotary Spading-Machines. Feb. 8, 1859.

Claim. 1. A series of spades e, which are operated substantially as set forth, so as to descend edgewise into the soil, successively in each other's track, and then to move laterally to detach the slice of soil upon which they operate from the undisturbed land.

2. Combining an endless series of spades, operating substantially as set forth, with a cam H, or its equivalent, that controls their positions by means of spade-handles, or their equivalents that are connected with the blades of the spades.

3. Adapting the machine to be moved either end forward, by constructing the device that imparts lateral movements to the spades in such manner that its position may be changed, and that it may be made fast in either position.

**23,407. J. C. STODDARD,** Worcester, Mass. Rotary Cultivators. Mar. 29, 1859.

Claim. 1. The share A, and wings or blades C arranged relatively with the wheel or wheels behind the share A and between the wings or blades C, substantially as and for the purpose set forth.

2. The adjustable rotating scrapers J, applied to the wings or blades C, and arranged

to operate as and for the purpose set forth.

3. The combination of the lateral adjustable hoes *m*, share *A*, adjustable wings or blades *C*, rotating scrapers *J*, wheels *H*, one or more, arranged for joint operation substantially as and for the purpose set forth.

**24,597. JOHN YOUNG,** Joliet, Ill.

Rotary Cultivators. June 28, 1859.

Claim. The arrangement and combination of a skeleton or open rotary plowing cylinder, when the mold-boards therefor are set tangential and extended from end to end of the cylinder in a straight or oblique direction, in combination with a rotary shaft or circular edged disk, the whole being operated substantially as and for the purposes set forth.

**24,799. BENJAMIN F. FIELD,** Sheboygan Falls, Wis. Rotary Cultivators. July 19, 1859.

Claim. The combination of two or more wheels on one crank eccentric, or equivalent axle, when the said wheels are arranged in pairs on the axle, one wheel within the other, and so that the spades of forks attached to the inner wheels shall pass out and in through the apertures in the outer wheels, purpose of displacing and pulverizing the soil over which they pass, in the manner described.

**27,388. THADDEUS S. SCOVILLE,**

New York, N. Y. Cultivators. Mar. 6, 1860.

Claim. The arrangement and combination of the side beams *A A* hinged together, the jointed bar *a* connecting the thills, the spur wheels *D D D D*, acting both as cultivators and supporters, the convertible cultivating teeth *E E*, and the sliding or self-adjusting seat *G* substantially in the manner and for the purpose specified.

**28,359. ANDREW A. GARVER,** Mechanicsburg, Pa. Digging Machines. May 22, 1860.

Claim. 1. The combination, with the cylinder *5*, of the spades *6*, so arranged, in connection with the other parts as to have a torsional vibration, as described, for the purposes set forth.

2. The combination of the cylinder *5*, and the torsionally vibrating spades *6*, with the traction wheels *11* and *12*, or one of them, by means of detachable gearing, substantially as and for the purposes stated,

**28,368. ELIJAH HARRIS,** Princeton, Ill. Spade Plows. May 22, 1860.

This invention consists in making a spade plow supported and driven by driving wheels causing the cylinder furnished with spades in spiral rows to revolve with sufficient velocity to thoroughly cut and turn over the soil at any reasonable depth.

Claim. The arrangement of the cylinder *J*, in combination with spades *K<sup>1</sup>* *K<sup>1</sup>*, pivots *L*, *L*, pinions *M M*, master or driving wheels *D D*, arms *G G*, slotted guide *N*, scrapers *O O*,

and rod *P*, with a cord attached to it, substantially as shown and described.

**28,465. RICHARD J. GATLING,** Indianapolis, Ind. Machines for Pulverizing the Soil. May 29, 1860.

Claim. 1. A rotary share frame, provided with shares capable of being adjusted to vary the depth of their cut, as well as to escape or pass over obsructions that may be in their path substantially as shown and described.

2. The employment of two sets of shares *K*, attached to a rotating frame at opposite points of its shaft, to admit of the adjustment of the of the shares free from the ground when they are not required for operation, and thereby allow the machine to be readily turned and transported from place to place.

**28,687. H. A. G. POMEROY,** Providence, R. I., and **R. F. HUDSON**, Hartford, Conn. Plows. June 12, 1860.

Claim. The combined arrangement of the rotary screw-shaped plows *C*, on shafts *H H H*, arranged parallel with each other and with the path of motion of the machine, with the oscillating frame *D*, when the whole is constructed and operates as described for the purpose set forth.

**29,644. FERDINAND WOLF,** Brooklyn, N. Y. Cultivators. Aug. 14, 1860.

Claim. 1. The roller *B*, provided with teeth *a*, in combination with the harrow *C*, plows *D*, plates *E E<sup>1</sup>* and the gearing through which motion is given to the several parts, all arranged and operating substantially as and for the purpose set forth.

2. The combination of the plows *D*, with the plates *E E<sup>1</sup>*, operating so as to lay out the ground in regular hills, substantially as described.

3. The plates *E E<sup>1</sup>*, operated by means of lazy tongs *I*, substantially as and for the purpose specified.

**30,771. L. STEVENS,** Dover, Ky. Cultivators. Nov. 27, 1860.

Claim. The arrangement of the bars *B B*, connected with the beam *A* by the clamps *G*, in connection with the adjustable feet or standards *F F* and bars *J J*, attached to the bars *B B*, and having the plows and scrapers respectively secured to them, the handles *C C* being attached to the bars *B* and landsides *b b*, and all arranged as and for the purpose set forth.

**31,531. CICERO COMSTOCK,** Milwaukee, Wis. Rotary Cultivators. Feb. 26, 1861.

Claim. 1. The stationary cam, having the friction wheel forming a part of the groove, and arranged in relation to the other parts of the machine as shown.

2. The guide-levers in combination with the stops, as and for the purpose herein set forth.

3. The spiral threads and grooves, the slots

in the wheels or heads, and the cam groove for giving the motions of the spades or forks, the whole being constructed and arranged in the manner as set forth.

**31,738. W. F. QUINBY,** Stanton, Del.  
Cultivators. Mar. 19, 1861.

Claim. The employment of two or more rotary cylinders A D', armed with suitable teeth secured to their peripheries, and so combined that the revolution of the foremost cylinder shall give a greater relative speed to the rear cylinder or cylinders, said cylinders having their bearings in a suitable frame, which is mounted in a carriage, consisting of frame E, E, wheels F F, jointed frame H H, and front wheel I, cords or chains J J pulleys m m, and roller G, or their equivalents, all combined and operating substantially as and for the purposes set forth.

**32,137. DONALD MANN,** Rochester,  
N. Y. Rotary Spading Machines. Apr.  
23, 1861.

This invention is designed as an improvement upon a machine patented to O. C. Evans Nov. 4, 1856, and consists in arranging and supporting the rollers or drums carrying the endless chains of forks or spades in a frame separate and distinct from the carrying truck or frame of the machine, so that the digging apparatus can be easily raised from the ground when the machine is moved from place to place.

Claim. Arranging the drum or rollers a b c, with their endless chains C, in the separate frame B, substantially as and for the purposes set forth.

**32,600. R. J. GATLING,** Indianapolis, Ind. Machines for Pulverizing the Soil June 18, 1861.

These shares are constructed in the form shown in the engraving, with sharp cutting edges in front and arranged in the two ends of the frame in such a manner that the soil left by one set shall be cut by the other. The shanks of the inner ends, of the shares are pivoted so as to swing back on the sides of the frame, and are held in place by means of levers placed across them and secured by wooden pins which break in case the share comes against any obstacle in its way.

Claim. The shares or cutters lettered K, when made, constructed, arranged, and operated substantially as shown and specified, for the purpose set forth.

**32,981. ISAAC C. CRANE,** Bronson, Mich. Spading Machines. Aug. 6, 1861.

Upon the periphery of a revolving cylinder is arranged a series of spades, the shanks of which are pivoted in openings in the cylinder. Secured to the axle, and extending lengthwise through the cylinder, is a stationary cam, which as the machine is moved along, moves the inner ends of the tripping levers or shanks, and causes the spades to descend into the ground. As the inner ends escape from the cam on the

revolution of the cylinder, the spade is made to return to its first position by the action of a spring secured within the cylinder to the spade shanks.

Claim. The combination of rotary cylinders A, segmental cam K, pivoted spades I, and springs J, all constructed, arranged and operating in the manner and for the purposes explained.

**34,473. N. BADGER,** Shelbyville, Ky.  
Digging Machines. Feb. 25, 1862.

Claim. 1. The combination of the oscillating guide I, arms d, and crank G, with cylinder F, as and for the purpose shown and described.

2. The combination with the parts of the pulverizing rollers N P, as shown and described.

**34,751. EDWIN GORDON,** Taunton, Mass. Rotary Diggers. Mar. 25, 1862.

Claim. 1. The combination of the draught bar, e, and adjusting lever e with the bar g, upright f, arm h, and side cases a, as and for the purpose shown and described.

2. The arrangement of the cylinders A E with each other and with the gears h i k l, as shown and described.

**35,218. CICERO COMSTOCK,** Milwaukee, Wis. Rotary Plows. May 13, 1862.

Claim. 1. Hanging the spade or fork shafts inside of the periphery of the wheel, as set forth.

2. Connecting the tooth or spade to the shaft forward of the shaft, as recited.

3. The introduction of india-rubber between the box or cap of the tooth and the shafts to give elasticity and protection to the tooth and shaft, as described.

4. The hinged-sections of the cams for allowing of the folding up of the forks or spades.

5. Hanging the spades' or forks' shaft to the wheels or arms by the handles, as described.

6. Providing that part of the cam which receives the pressure of the spade or forks' shaft with the spring or elastic bearing.

**38,109. SILAS HEWITT,** Seneca Falls, N. Y. Clod Crushers. Apr. 7, 1863.

Claim. The adjustable clearers E, arranged as shown, in combination with the toothed cylinder D, for the purpose specified.

**38,124. W. F. QUIMBY and G. G. LOBDELL,** Stanton and Wilmington, Del. Cultivating Machines. Apr. 7, 1863.

The cultivating toothed roller is mounted on a frame on wheels, and is succeeded by a pulverizer; the digger teeth are presented to the ground by an arrangement of a central cam, a rope, and a windlass, and are vibrated so as to cast off the raised soil as they ascend from contact with the surface.

Claim. The arrangement and combination of the windlass l, levers G, digging cylinders D with teeth h, attached to fixed or oscillating bars, pendent arms k, pulverizing cylinder J, and windlass p, all constructed and operating in the manner and for the purpose set forth.

**38,676. C. G. GRABO,** Greenfield, Wayne County, Mich. Cultivating Machines. May 26, 1863.

Claim. 1. In combination with the rotary cultivator and hinged cultivator frame, as herein described, the adjustable journal boxes G, for regulating the tension of the ropes and belts by which the cultivator is rotated, substantially in the manner herein set forth.

2. Securing the teeth of the cultivator to the body of the same, substantially in the manner and for the purposes herein described.

**39,975. W. WADSWORTH,** Sacramento, Cal. Rotary Spading Machines. Sep. 15, 1863.

As the spades rise, after having performed their office, the soil is scraped out of them, and they are pressed and caused to pass under the casing until they are again projected to operate upon the ground.

Claim. The employment of the cleaner or cam G in combination with the spades d, substantially in the manner and for the purpose herein shown and described.

**41,138. JAMES L. COLE,** Chariton, Iowa. Spading Machines. Jan. 5, 1864.

Claim. The spade or fork standards M, constructed with a crook or oblique portion e, and operated through the medium of the levers L, pitman K, and crank pulleys J, or their equivalents, in combination with the rollers N N', all arranged and applied to a mounted frame A, to operate as and for the purpose herein set forth.

**43,808. W. WADSWORTH,** Sacramento, Cal. Tilling the Soil. Aug. 9, 1864.

Claim. 1. The employment or use of a series of tines or teeth d' attached to a suitable rock shaft D, and having an oblique or inclined position relatively with the surface of the soil to be operated upon so that as said teeth or tines are propelled or drawn along in the soil the latter will be forced up, while weeds, straw, and similar trash will pass over the teeth or tines to the rear of the machine, substantially as herein set forth.

2. The combination of the teeth or tines d, rotary toothed drum G, and roller C, all arranged substantially as and for the purpose specified.

**43,913. JOHN HOADLEY,** Zanesville, Ohio. Rotating Plows. Aug. 23, 1864.

Claim. 1. In combination with the shaft i and guide wheel r, the arm z, lever u and wheel v, for elevating, lowering and regulating the depth of the furrow, when constructed in the manner as and for the purpose set forth.

2. The guide wheel r, when arranged in the manner set forth for supporting the plow when operating or plowing.

3. The combination of the wheels r and z, arranged and operating substantially as set forth, for regulating the depth of the furrows.

4. The brace n, connecting the axle c c' of the walking wheel with the plow shaft i i' and

supporting the latter outside of the walking wheel d'.

5. The use of the rotating plows attached to the shaft outside the walking wheel, when said shaft is supported by a brace or other equivalent device, attached to the outer end of the axle of the walking wheel.

**45,249. JOHN JOHNSON,** Mount Washington, Ohio. Earth Pulverizers. Nov. 29, 1864.

Claim. In the construction of the implement herein described, the combination and arrangement of the frame A, pulverizer C, furnished with open teeth b, curved in the manner described, traction wheels B, gearing c d' e f, and adjustable caster wheel D, substantially as and for the purpose herein specified.

**46,048. LEMUEL S. FITHIAN,** Absecon, N. J., assignor to himself and John Young, Joliet, Ill. Machines for Pulverizing the Soil. Jan. 24, 1865.

Claim. 1. Constructing the rotary pulverizer in sections, the cutters M of which coincide with frustums of a cone or cones, substantially as and for the purpose specified.

2. Giving the cutters M a raking position, and also an oblique position on the heads L', substantially as and for the purpose set forth.

**46,768. JOHN B. ATWATER,** Chicago, Ill. Plows. Mar. 14, 1865.

Claim. 1. The combination of one or more rotating augers with one or more turn plows and an adjustable swinging frame B, substantially as described.

2. The employment of rotating augers upon a frame B, that carries the plow A A', and which is hinged at its rear arched ends to the rear supporting axle D, and suspended near its front end from the beam C, substantially as described.

3. Arranging the augers in a line with and over the points of the plows when both augers and plows are sustained beneath and by a vibrating frame, substantially as described.

**46,995. CICERO COMSTOCK,** Milwaukee, Wis. Rotary Spaders. Mar. 28, 1865.

Claim. 1. The curved tine or tooth, widest at the point, with notch on the concave side of the head to embrace the fork-bar and stirrup, or clamp, and sharpened at the point by being beveled on the concave side substantially as herein recited.

2. Securing the tooth or tine to the fork-bar by the stirrup or clamp and key, as herein recited.

3. The combination of the fork-bar, clamp, key, and tine or tooth, having the notch, as and for the purpose herein set forth.

4. Securing by casting the lugs on the ends of the fork-bars, to which to hand the friction roller or wheels.

5. Casting the handles or cranks on the fork-bars, as and for the purposes described.

6. Such a location on the handles or cranks on the fork-bars, in reference to the main wheels, that when the main wheels are keyed in place shall secure the forks in position, herein named.

7. Driving the keys which secure the main wheels to the axles towards the center of the machine, so that the hubs of the cams bearing against the heads of the keys will prevent the keys from loosening or coming out.

8. The arrangement of the collars and sockets set forth, for excluding the dirt from the interior of the cam hubs.

9. Alternating the tines, as and for the purposes set forth.

10. The spring on or near the back part of the cam, for the purposes recited.

11. Making that portion of the central part of the cam which governs the action of the forks in the ground a separate piece, so that the same may be replaced as herein stated.

12. The construction and arrangement of the links and levers for actuating the movable section of the cam, and permitting the same to be self-actuating, as herein described.

**47,005. LEMUEL S. FITHIAN,** Rahway, N. J. Rotary Plows. Mar. 28, 1865.

Claim. 1. A traction wheel or drum which is provided with bevelled slats or bars extending obliquely across it, and operating substantially as described.

2. Securing the slats of a ground propeller to the radial spokes of three or more wheels, which are constructed and braced substantially as described.

3. The employment of metal face plates *e e* in combination with the bevelled and obliquely arranged slats *g g*, substantially as described.

**47,996. HENRY STANLEY,** Troy, N. Y. Rotary Diggers. May 30, 1865.

Claim. 1. The combination of the H-formed links *g g* with the tooth-links *f f*, provided with lugs *h h*, all being constructed as specified.

2. Having the ends of the teeth made of conical form when fitting into corresponding-shaped sockets in the links, substantially as described.

3. The lips *k k* to prevent the turning of the teeth, substantially as described.

4. The employment of one or more intermediate shaft-supporters, *H H*, in combination with the chain-rollers, substantially as herein described.

5. The employment of the toothed segment *O O*, in combination with the wheels *L L*, substantially as described.

6. The combination of the lever by which the digging-teeth are raised and lowered with the driver's seat, substantially as described.

7. The pawls *S S*, *T T*, in combination with the lever *R R* and ratchet *Q Q*, substantially as described.

8. The employment of a locking device, *V V*, or its equivalent, in combination with the raising mechanism, substantially as and for the purpose described.

9. The employment of an adjustable driver's seat, in combination with one or more endless chains of digging-teeth, substantially as described.

10. The combination of the cranks *N N* with rear roller, substantially as described.

11. The employment of the raising-lever in combination with the segment or its equivalent, substantially in the manner herein shown and described.

12. The adjustable handle of the raising-lever, in combination with the raising-lever and the adjustable driver's seat.

**49,642. WM. R. MEARS,** Grafton, Ill. Spading Machines. Aug. 29, 1865.

Claim. 1. The combination of a series of pivoted revolving spade shafts or rollers *b b*, and attached spades *d d*, with a pair of supporting wheels *g g*, when the journals of said rollers *b b*, are confined in fixed and stationary bearings formed in said wheels, substantially in the manner and for the purpose herein set forth.

2. In combination with the spade shafts or rollers *b b*, rocking in stationary bearings, as described, the outer segmental levers *c c*, cam *B B*, and guide plate *n n*, all arranged and operating substantially in the manner and for the purpose herein set forth.

3. The combination of a series of spades *d d* with a bent axle *D D*, and the supporting wheels *g g*, substantially in the manner and for the purpose herein described.

**50,438. EDWARD BADLAM,** Ogdensburg, N. Y. Cultivators. Oct. 17, 1865.

Claim. The combining and arranging of the cutter wheels *C C*, on shaft *B B*, with the cultivator teeth as arranged on bars *F F*, with the drill teeth *G G*, seed boxes *I I* and *O O*, and roller *P P*, and conducting tubes *H H*, with the quadrangular frame *A A*, and wheels *M M*, all combined and arranged in the manner and for the purpose herein set forth.

**51,757. CHARLES SHABLEY,** Brooklyn, N. Y. Pulverizing and Furrowing Devices. Dec. 26, 1865.

Claim. 1. The furrow openers or shares *Z Z*, attached to a frame mounted on wheels in combination with reciprocating toothed plates *G G*, arranged and applied to the machine, to operate in the manner substantially as and for the purposes herein set forth.

2. The attaching of the plates *G G* to the machine by means of arms *E E*, two or more fitted on a bar *F F*, and arranged substantially as shown, to admit of the raising and lowering of said plates as described.

3. The operating of the plates *G G* from the driving wheels through the medium of crank shafts and pinions *I I*, *J J*, and connecting rods *f f*, the shafts *I I* having their bearings in sliding or adjustable rods or shafts *H H*, connected to a lever *K K*, by which the plates *G G* may be readily rendered operative or inoperative as desired.

**52,496. DAVID MYERS**, assignor to himself and William H. Kretzinger, Chicago, Ill. Rotary Plows. Feb. 6, 1866.

Claim. The employment of a series of rings in combination with the revolving cylinder F, and shovels *a*, arranged and operating sub-as and for the purposes herein shown and described.

**53,577. LEVI H. COLBORN**, Chicago, Ill. Potary Plows. Apr. 3, 1866.

Claim. 1. Giving the helical or screw plow blades of a rotary plow, in addition to their screw form, an additional curvature from the periphery toward the center, beginning at or near the entering edge, and gradually increasing toward the leaving edge, the same being a development of the mold board of the common plow around an axis of revolution.

2. Attaching to a rotary plow blade, at any suitable place thereon, a horizontally projecting cutter, in order to give a horizontal slicing undercut to the furrow, substantially as set forth.

3. Making rotary plow blades adjustable on their propelling shaft, so that they may be set to cut furrows of different widths by attaching two, three, or more blades to the shaft, as set forth.

4. Connecting the plow blades to the plow shaft, so that their delivery end shall project in the rear of the shaft, and be left free and unobstructed, substantially as described.

5. Connecting the plow shaft to the axle of the driving wheels by a loose journal D, so as to allow the plow to vibrate in order to pass small stones and other light obstructions, substantially as set forth.

**57,242. SYLVESTER WOOD-BRIDGE**, Benicia, Cal. Machines for Tiling the Soil. Aug. 14, 1866.

Claim. 1. The tiller frame B', tiller shaft G, and guide plate of shaft K, in combination with the crank on the tiller shaft G, and crank shaft and F, connecting rods H, substantially as and for the purpose set forth.

2. The truck frame A, and driving wheel or cylinder C, spur gear D, (whether internal or external,) and pinion E, with or without intermediate gearing, in combination with the means hereinbefore described and set forth of operating agricultural implements by cranks, rods, guide plates, or shafts, substantially as set forth.

**58,289. W. F. QUINBY and GEORGE G. LOBDELL**, Wilmington, Del. Rotary Diggers. Sep. 25, 1866. Antedated Sep. 10, 1866.

Claim. 1. The use in rotary diggers of teeth bent to the curve described, for the purpose specified.

2. The curved tooth *a*, having the sectional form described, for the purpose set forth.

3. The tooth *a*, adapted to a groove in the cross-bar B and secured thereto by a plate D, as and for the purpose herein specified.

**58,319. ANDREW THOMPSON**, Ottumwa, Iowa. Rotary Cultivators. Sep. 25, 1866.

Claim. 1. The pendant rods J J, provided with bearings for the cylinder G, said bearings being guided in slots in the frame E, for the purposes and substantially as herein shown and described.

2. The revolving cylinder in combination with the pendent rods J J and crowned braces H H, substantially as and for the purpose herein shown.

3. The frame E, provided with the slots which guide the bearings of the pendent rods J J and braces, substantially as herein shown.

**58,543. E. J. FRASER**, Erie, Pa., assignor to himself and Orange Noble, same place. Rotary Spading Machines. Oct. 2, 1866.

Claim. 1. The smooth-faced cylinder C, set with rows of teeth or spades *m*, and hung on the free shaft *a a*, in combination with the shifting clutch *d*, and the vertical rack *c*, and pinion *b*, for raising and lowering the cylinder, constructed and operated substantially as and for the purpose herein described.

2. The rotating pulverising arms *p*, in combination with the spading cylinder C, and connected therewith by the gear wheels *k k l*, operated by the epicycloidal wheel F, on the chine of the cylinder constructed and operated substantially as and for the purposes herein specified.

3. The spring scrapers *r*, and the friction roller or bearer E, in combination with the spading cylinder C, constructed and operated substantially as and for the purpose herein described.

**60,164. JAMES C. FITZGERALD**, Willet, N. Y. Rotary Cultivators. Dec. 4, 1866.

Claim. 1. The arrangement of the spirally and inclined arm pulverizer H, resting in the eccentric bearings *k*, when said parts are combined with a vertically adjustable frame G, suspended from the main frame and concentric with the axle as set forth.

2. In combination with the frames G and C, the draft chains M, and the gage arms N, operating substantially as and for the purpose specified.

**61,262. JOHN P. TARNUTZER**, Fond du Lac, Wis. Cultivators. Apr. 30, 1867.

Claim. 1. The shaft D, with pinion *y* and pinion rack *r*, and capstan-head C, and movable frame B.

2. The rollers F F and sheave S, upon which a chain passes.

3. The hinges *h h*, upon which the frame E is hung.

4. The wings *w w*.

5. The movable frame beam B.

**64,580.** J. DAVID SCHULTZ, Robesonia, Pa., and REUBEN ADAMS, same place, assignors to themselves and John McNight. Cultivators. May 7, 1867.

Claim. 1. The arrangement of the frame A with its shafts G, arms I I, bars b b, and springs a a, with rakes d, when operated in the manner and for the purpose set forth.

2. The elevation or depression of the frame with its cultivators by means of the bar g and levers y attached to the thill e, in the manner substantially as and for the purposes specified.

**66,802.** M. A. and I. M. CRAVATH, Bloomington, Ill. Revolving Plows. July 16, 1867.

Claim. 1. The plow A, combined with the axle a, constructed as herein mentioned, as a new article of manufacture.

2. The arms e f g h, of different lengths and shapes, as shown, for the purpose of combining and operating two or more plows.

3. The combination of the slides F F, the bent levers G G, the swivels H H, the curved straps I I, or any equivalent device to operate the wheels E E, in the manner set forth, for the purpose herein mentioned.

**9,603.** MYRTILLUS A. CRAVATH, Bloomington, Ill., and JAY S. CORBIN, Gouverneur, N. Y.; said Corbin assignee of said M. A. Cravath and of Elmira E. Cravath, Administratrix of Isaac M. Cravath, deceased. Revolving Plows. Original No. 66,802. July 16, 1867. Reissued Mar. 15, 1881. Filed Nov. 23, 1880.

Claim. 1. In a rotating disk-plow, a rotating concavo-convex plow constructed of a single plate of metal, arranged, substantially as described, to have its front edge cut the soil, and adapted to turn the soil to form a furrow.

2. In a plow a revolving concavo-convex cutting-disk mounted upon and attached directly to the tongue or draft-frame, substantially as described.

3. The combination, with a draft-frame, of a revolving concavo-convex disk arranged, substantially as described, to cut the soil to form the furrow, and mounted on said frame obliquely to the line of draft.

4. The combination of a plow-frame, revolving disk plows below said frame, and a driver's seat adapted to have the driver's weight enforce a uniform cutting action of the disk.

5. The combination of a draft frame and a gang of two or more concavo-convex disk-plows, arranged with the concave sides toward the front and at an angle with the line of draft.

6. The combination of a draft-tongue, rotating concavo-convex cutting-disks, rotating axles for said disks, adapted to hold the concave sides of the disk in the direction of the draft, and an intermediate frame which connects said axle to the tongue.

7. In a revolving plow, the combination of

a concavo-convex cutting-disk and a rotating axle which has one end mounted in the rear of the other to hold the concave side of the disks in the direction of the shaft.

8. In a revolving plow, the combination, with the connecting frame, of the rotating concavo-convex cutting-disks, adapted to support said frame above the ground and to have the concave sides at an angle to the line of draft.

9. In a revolving plow, the combination, with the supporting-frame, of a gang of rotating concavo-convex cutting-disks arranged in parallel planes, and adapted to have all the concave sides throw the soil in one direction.

10. The combination, with the rotating plows A and the axles a, of the arms e f g h, of different lengths, and each arranged to support the ends of two of said axles.

11. The combination of the slides F F, the bent levers G G, the swivels H H, and the curved straps I I to operate the wheels E E, as set forth.

**68,410.** E. T. BUSSELL, Indianapolis, Ind., assignor to himself W. H. Candee and Jacob Eldredge. Rotary Plows. Sep. 3, 1867.

Claim. 1. Segment driving wheels S, compassing less than half a circle, when used in combination with pinions p, for the purpose of rotating each anger upon its own axis at the proper point for most effectually breaking and pulverizing the earth, substantially as shown.

2. Supplementary yielding cogs b b, when the same are attached to flat springs, as shown, and these in connection with the segments S, as and for the purpose stated.

3. Dirt yield f, and its adjunct e, when these are made and used substantially as shown and for the purpose specified.

4. Castor wheels p<sup>2</sup> and roller m, or their equivalents, when the same are used for graduating the depth of this rotary plow, and for transporting the same from place to place.

**68,689.** HENRY BERKSTRESSER, Quaker Bottom, Ohio. Rotary Plows. Sep. 10, 1867.

Claim. 1. The plows e e, fitted upon the periphery of the wheel E, constructed and arranged as shown and described, as and for the purpose specified.

2. The combination of the wheel E with the tilting frame A, the draft pole F, and the lever d, arranged and operating substantially as and for the purposes set forth.

**71,589.** JAY DENSMORE, Holly, N. Y., assignor to L. A. Densmore and Hiram Curtis. Rotating Tooth Cultivators. Dec. 3, 1867.

Claim. 1. A rotating cultivator tooth, consisting of any number of teeth, attached to a hub or common center, around which they are free to revolve, and set at an angle to the draft, substantially as described.

2. The combination and arrangement with a rotating cultivator tooth of the standard S,

the pin P, the bush o, the washer i, and the keys l and n, substantially as set forth and described.

3. The combination and arrangement with a rotating tooth cultivator of the frame B, the shaft G, the cranks F, the wheels A A, the lever L, the pin 3, the cross-bar N, and the holes 4 4 4 4 4 4, substantially as set forth and described.

4. The combination and arrangement with a rotating tooth cultivator of the pole M, the guides K and L, the pin t, the holes 2 2 2 2 2, the driver's seat C, and the spring E, substantially as set forth and described.

**74,991. WILLIAM H. CHAMBER-LAIN,** Medina, N. Y. Potato Diggers.

Mar. 3, 1868.

Claim. 1. The wheels G, formed with three curved, prongs g', and removably arranged upon the shaft F, substantially in the manner herein shown and described and for the purposes set forth.

2. The combination of the pronged wheels G, shaft F, frame B, gear wheels E and D, axle A, drive wheels C, and tongue I, with each other, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the tongue I, seat K, bars L J, lever M, and catch N, with the frame B and axle A, all constructed, arranged, and operating substantially as herein set forth for the purpose specified.

**75,578. ELEAZER B. ROBERTS,** Rochester, N. Y. Cultivators. Mar. 17, 1868.

Claim. 1. The application, to cultivators, of rotary weed cutters hung on a vertical shaft, and operating substantially in the manner herein shown and described, and for the purposes set forth.

2. The application, to cultivators, of rotating hoes hung on a vertical shaft, and operating substantially in the manner herein shown and described, and for the purposes set forth.

3. The arrangement of the arm M, in combination with the rotary hoe D, substantially in the manner and for the purposes herein shown and described.

**77,830. JAMES W. MILROY,** Galveston, Ind. Revolving Spade Plows. May 12, 1868.

Claim. 1. In a revolving spade plow, the hinged frame D, operating substantially as and for the purposes set forth.

2. The employment of one or more revolving plows or forks, arranged to operate substantially as described.

3. The combination of the lower spade or forked wheels R R, with the upper wheels R' R' gearing therein, substantially in the manner and for the purpose set forth.

4. The combination of the frame A, roller H, pawl l, and cords v v, all arranged and operating substantially as and for the purpose specified.

**78,031. JOHN VAUGHN,** Miami County, and **ELI CHAMNESS,** Grant County, Ind. Subsoil Plows. May 19, 1868.

Claim. 1. The construction and arrangement of the wheel B, substantially in the manner and for the purpose as herein set forth.

2. The combination of the frame A and dashboard d with the wheel B, substantially in the manner and for the purpose as herein set forth.

3. The combination of the plow D with the wheel B, substantially in the manner and for the purpose as herein set forth.

4. The combination of the jack or cleaner C and frame A with the wheel B, substantially in the manner and for the purpose as herein set forth.

**78,400. PHILANDER H. STANDISH,** Martinez, Cal. Mounting the Cutters for Rotary Plows. May 26, 1868.

Claim. 1. The revolving hubs E E and the supporters F F, constructed and operating substantially as and for the purpose described.

2. A flexible or yielding arm, having the spring G, or its equivalent, together with the rotary cutter, substantially as and for the purpose described.

**78,442. HARMON P. ECKLES,** Catskill, N. Y. Combined Cultivators and Hoes.

June 2, 1868.

Claim. 1. The fans or paddles f f, when attached to shafts K K, and operated substantially as and for the purpose specified.

2. The combination of the shafts A and K K, gear wheels I I, and H H, and frame S, when arranged substantially as described, and for the purpose of operating the paddles or plates f f, as herein specified.

3. The combination of the cultivator frame L with its teeth M M, secured to the frame C, as described, with the shafts K K, frame S, and paddles f f, for the purpose of cultivating or pulverising the earth, and ridging or hillng the same, at one and the same time, as herein set forth.

**80,604. GEORGE W. COOPER,** Ogeechee, Ga. Rice Cultivators. Aug. 4, 1868. Antedated July 30, 1868.

Claim. 1. The cutter D of a rice cultivator when arranged as described, with upturned cutting sides a a, substantially as set forth.

2. The curved cutters E E, when arranged on the sides of the cultivator, so as to cut close to the plants, without injuring the same, as set forth.

3. The revolving toothed breakers H H, when arranged with beveled edges, and when made and operating substantially as herein shown and described.

4. The revolving breakers H H, when made as set forth, in combination with the washer b, and cleaners I I, all made and operating substantially as herein shown and described.

5. Making the arms F, in which the axles G of the breakers has its bearings, adjustable on

the beam A, so that thereby the height of the breakers can be adjusted, as set forth.

**6.** A rice cultivator, consisting of the beam or frame A, with the cutters D E E, and breakers H H, all made and operating substantially as herein shown and described.

**80,643. GEORGE F. LYNCH,** Milwaukee, Wis. Rotary Cultivators. Aug. 4, 1868.

Claim. **1.** The shape of the tooth and the manner of finding the curve of the same, to suit any sized head or cylinder, as herein recited.

**2.** Having the heads loose on the axle, to prevent clogging or choking, as herein described, in combination with the attaching the heads to the truck by straps, so as to permit each head or cylinder to act and move over obstructions independently.

**81,333. CORNELIUS BERNINGER,** Mier, Ill., assignor to himself, William Friend, and George L. Bailey, same place. Soil Pulverizers. Aug. 25, 1868.

Claim. The harrow teeth *a* and toothed cylinder *F* provided with the wheels *G G*, when said parts are applied or attached to a frame, *E*, suspended to a mounted frame, *A*, and all arranged substantially in the manner as and for the purpose set forth.

**83,456. FRANCIS L. CAGWIN,** Joliet, Ill. Spading Plows. Oct. 27, 1868.

Claim. **1.** The spades *a*, when operating in the manner and by the devices described, so as to enter the ground on the cycloid line, as set forth.

**2.** The maintaining of the parallel between the spades *a*, from the time of their entry into the ground until the heel of the spades come to a rest up against the drum or disk *b*, to any given point, either before or past the hinge line, by means of the traction and weight of the machine, causing them to turn on their hinge, as described.

**3.** The backward turn of the spades *a* from the cycloid entry line to their original position, as described, by means of the upright lever *e*, and spring *i*, as set forth, regulated to stop at any given cycloid point by means of the device shown in Fig. 5, or its equivalent.

**4.** The spades *a*, constructed with a crank and hinge, when attached, as set forth, to the periphery of the drum or disk *b*, in combination with the upright lever *e* and spring *i*.

**5.** A rotary spader or plow, constructed with spades *a*, hinged to the drum or disk *b*, as shown in combination with a frame, constructed and operating substantially as set forth.

**6.** The mode of leverage, substantially as described, to force the spades into the ground, and to raise them out of the ground when desired, as set forth.

**7.** The combination of all the parts described, when arranged and operating as set forth.

**83,639. EDWARD H. KENT,** Portland, Oregon. Rotary Spading Machines. Nov. 3, 1868.

Claim. The spade bars *E*, moving in slots *O*, operated by pawls *H* and lever *L*; also, fastening the spade bars *E*, when extended outward in the slots *O* of the cylinder *B*, by the latches *D*, falling in and out behind the collars *G*, with the groove *M*, on the shaft *N*, and the concentric segment *I* and bars *J*, and combination of the various parts as herein described, and for the purposes set forth.

**84,016. ALFRED F. STONER,** West Unity, Ohio. Cultivators. Nov. 10, 1868.

Claim. **1.** The spiked roller *B*, in combination with the spring, concave, or toothed bar *M*, arranged and operated substantially as set forth.

**2.** The arrangement of the hiller *E*, in combination with the share *C* in the front part of the frame, and the pulverizing roller and concave, substantially as described.

**84,430. THOMAS E. McDONALD,**

New Brunswick, N. J., assignor to P. P. Runyon, Johnson Lester and George J. Janeway, same place. Cultivators. Nov. 24, 1868.

Claim. **1.** A machine, having a series of cultivator teeth arranged on a rotary shaft, in combination with a swinging or hinged frame, pivoted in rear of the cultivator, when the latter is operated by its progressing over and in contact with the ground, substantially as described.

**2.** The employment, in combination with the cultivator hinged frame, of the chains, or their equivalents, and a suitable moving and holding mechanism for retaining the adjustable frame while the cultivator is at work, substantially as and for the purposes set forth.

**3.** Arranging the teeth on each hub, or each set of teeth, spirally, as and for the purpose specified.

**4.** Method, shown and described, of constructing and combining the teeth and their retaining arms and hubs.

**5.** A divided cultivator shaft, whereby the machine is rendered capable of straddling a row of plants, and cultivating each side, as hereinbefore set forth.

**85,019. LORING MOODY,** Malden, Mass. Spading Machines. Dec. 15, 1868.

Claim. **1.** Hanging, upon cranks, spades, with handles passing through the axle, which serves as their fulcrum, operating substantially as and for the purposes described.

**2.** Connecting the spade handles with the crank by means of the sockets and screws, in order to lengthen or shorten them at pleasure, substantially as and for the purposes described.

**3.** The combination of the lever *H*, with the axle, whereby the spades may be inclined at any angle with the earth, or thrown out of it when desired, substantially as and for the purposes described.

4. The combination of the lever I, the rotating bar J, and the arm K, with the crank C, for throwing the machine out of or into gear, at pleasure, substantially as and for the purposes described.

5. The combination of the movable blocks M with the cranks C and posts N, substantially as and for the purposes described.

**87,721. ABRAM J. STEPHENS,** El Dorado, Wis. Revolving Cultivators Mar. 9, 1869.

Claim. The revolving cylinder E, adjustable standards *a*, casters *c*, bent rods *s* teeth *u*, wedges *v*, cross bar D, and drums *y*, combined and operating with the grooved wheel hubs, and the bands or belts herein mentioned substantially as specified.

**88,368. FRANCIS C. CONE,** San Francisco, Cal. Spading Machines. Mar. 30, 1869.

Claim. 1. The above described machine spade, when provided with an adjustable arm E, and a cutting edge, F, projecting in front of the blade G, substantially as herein described.

2. The revolving flanges B, having the tangential slots D, for determining the angle of spade, substantially as herein described.

3. The notches or shoulders *a a* in the sides of the slots D, for holding the spades, substantially as herein described.

**92,756. LYMAN SHERWOOD,** Springfield, Ill. Spading Machines. July 20, 1869.

Claim. 1. A spading machine, constructed and arranged with the revolving cylinder A, stationary shaft B, frame C, spades D, shank and toggles *a*, fingers *b*, studs *c*, grooved wheel E, studs *d*, slots *e e*, substantially as herein described, and for the purposes set forth.

2. The stationary grooved wheels E, constructed and arranged with the studs *d* and slots *e e*, substantially as herein described, and for the purposes set forth.

3. The combination of the spades D, shank and toggles *a*, with revolving cylinder A, arranged substantially as herein described, and for the purposes set forth.

4. The combination of the shank and toggles *a*, fingers *b*, and studs *c*, with the grooved wheel E, studs *d*, and slots *e e*, for the purpose of creating the semi-revolution of the spades D, substantially in the manner herein described.

**92,834. JAMES G. JOHNSON,** Carthage, Ill. Cultivators and Stalk Cutters. July 20, 1869.

Claim. The construction of the machine, herein described, consisting of the combination outer frame A, hinged frame C, roller L, cutters M M, and prongs O O, whereby I am enabled to furnish, in one machine, a corn stalk cutter, which by a slight interchange of parts as set forth, may be used as a meadow cultivator, substantially as specified.

**93,238. BREDE E. SIVERTSEN,** Pittsburgh, Pa. Rotary Spaders. Aug. 3, 1869.

Claim. An improved rotary spader, consisting of the several parts specified, all combined, constructed, and arranged as described.

**95,005. WILLIAM J. DAWSON,** Brookfield, Mo. Revolving Plows, Sep. 21, 1869.

Claim. 1. An improved revolving plow, formed by the combination of the plow or shovel plates K, arms J, shaft I, pivoted adjustable frame F, horizontal frame C, axle B, gear wheels L M, and wheels A, with each other, and arranged to operate as herein shown and described, and for the purpose set forth.

2. The combination of the long bolts G and pivoted lever H, with the adjustable frame F, and stationary frame C, substantially as herein shown and described, and for the purpose set forth.

**95,394. HENRY T. TAPLIN,** South New Market, N. H. Cultivators. Sep. 28, 1869.

Claim. 1. The combined cultivator and harrow teeth M *m'*, constructed substantially as herein shown and described, and for the purpose set forth.

2. The reversible teeth M and adjustable radial arms L, in combination with the revolving plate *k*, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the teeth M, adjustable arms L, revolving plate *k*, shafts H and F, gear wheels E, and D, axle B, wheels A, and frame C, with each other, substantially as herein shown and described, and for the purpose set forth.

4. The combination of the detachable circular cutter N *n'* with the shaft H, plate *k*, adjustable arms L, and teeth M, substantially as herein shown and described, and for the purpose set forth.

5. The combination of the bent lever O and lever C with the shaft H, plate *k*, adjustable arms L, and teeth M, substantially as herein shown and described, and for the purpose set forth.

**95,956. THEODOR UEHLING,** Logan, Neb. Rotating Cultivators. Oct. 19, 1869.

Claim. 1. The cultivator A, constructed and operated substantially as described, for the purposes set forth.

2. In combination with a rotating cultivator, the slide E, arranged and operated substantially as shown and described, for the purposes specified.

**97,870. ISAAC W. BURCH,** Fayette, Miss. Cotton Cultivators. Dec. 14, 1869.

Claim. 1. A cotton cultivator, having adjustable beams E, vibrating on joints C, in the front part of the frame, and adjustable, as to their distances apart, in the manner described.

2. A cotton cultivator provided with a vibrating frame I, and rotary cutters N, arranged

as described, to cut close to the plant, and cultivate on each side thereof, as set forth.

3. A cotton cultivator, with a pair of plows F F, to work on both sides of the row, and arranged in front of the frame, combined with a series of oblique cutters N N, on the hinder part thereof, arranged to rotate on disks, at a less distance apart than the plows, and to clean up close to the plants, all as shown and described.

4. The combination, with the frame A, mounted on wheels B, of the vibrating frame I and rotary oblique cutters N, arranged for adjustment and for operation, substantially as specified.

**98,017. ALBERT BONDELLI**, Philadelphia, Mo. Plowing-Machines. Dec. 21, 1869.

Claim. 1. The spade-wheels A a', one or more, constructed substantially as herein shown and described, and set at an angle with the vertical line, and with the line of draught, substantially as and for the purpose set forth.

2. The combination of the circular revolving cutters D, with the spade-wheels A a', and frame C, substantially as herein shown and described, and for the purpose set forth.

3. The combination of the adjustable caster-wheel E F G and adjustable hinged or jointed tongue H, with the frame C, circular revolving cutters D, and spade-wheels A a', substantially as herein shown and described, and for the purpose set forth.

4. Adjustably connecting the truck-wheels I with the frame C, to which the spade-wheels A a' and the circular revolving cutters D are attached by the pivoted arms J and guide-slides K, or equivalent devices, substantially as herein shown and described, and for the purposes set forth.

5. The combination of the levers L, or equivalent device, with the arms J, to which the axles of the truck-wheels I are attached, and with the frame C, to which the spade-wheels A a' and circular revolving cutters D are attached, substantially as herein shown and described, and for the purposes set forth.

**100,183. A. B. C. NUSBAUM**, Sacramento, Cal. Cultivators. Feb. 22, 1870.

Claim. 1. The rotary cylinder or polygon H, having its teeth or shares attached to it as shown and described, when said cylinder or polygon is fitted within a swinging frame connected to the axle A, as described, and driven or rotated from the driving wheel C through the medium of a chain, F', fitted over pulleys F I, having concave peripheries provided with transverse ribs, substantially as shown and described.

2. The combination of the swinging frame G, cylinder or polygon H, with spirally attached teeth, driving chain F' working over the pulleys F I, when all are constructed and applied to and used in connection with a suitable frame mounted on wheels C C', one of which is used

as a driver, substantially as herein shown and described.

**101,077. WILLIAM J. ANDREWS**, Columbia, Tenn. Cotton Cultivators. Mar. 22, 1870.

Claim. 1. The combination of screw-rod G with rocking box E and shaft D, all operating substantially as and for the purpose set forth.

2. The auxiliary frame M attached to main frame A, and arranged to operate substantially as and for the purpose described.

3. The auxiliary frame M, provided with scrapers N N and teeth O O, arranged to operate as and for the purpose specified.

4. The combination of the shaft A, screw rod G, boxes C E, wheel J with its adjustable hoes, frame A, and auxiliary frame M, all arranged substantially as set forth.

**101,710. JAMES CHENOWETH**, Shellville, Mo. Rotary Spades. Apr. 12, 1870.

Claim. 1. The wheel E, spades G, ball and socket joint G', and slide G", when combined and arranged as specified.

2. In combination with the wheels E and spades G, the rotating colters C, as specified.

3. In combination with the elements of the first claim, the cam F, when operating as and for the purpose specified.

**105,460. MOSES JOHNSON**, Three Rivers, Mich. Cultivators. July 19, 1870.

Claim. The cultivator herein described, having cross-bar C, staples D, disks E, scrapers a and H, brace K, draw-bar N, and auxiliary handle P, when constructed and arranged to operate as and for the purposes specified, as an improvement upon my patent of August 3, 1869,

**106,195. GODFREY S. NEWSOM**, Nashville, Tenn. Subsoil Pulverizers. Aug. 9, 1870.

Claim. The arrangement, in a subsoil pulverizer, and on a rotating tool stock thereof, of a series of triangular plow-points, L, sharpened on two sides, and shanks K, drawn to an edge on their front sides, all for the purpose of cutting and breaking up without turning the soil.

**107,218. ELIJAH BOURNE**, New Iberia, La. Plows, Planters and Cultivators. Sep. 13, 1870.

Claim. 1. The detachable rotary plow stock H, formed in two parts, hinged together, and constructed with tubular spokes, as described.

2. The arrangement of double spur wheel D, pinions P G, seed dropper M, and rotary plows I, operating as described.

**107,639. JAMES TRANTER, JOSEPH KINSEY, and JOHN M. CARR**, Cincinnati, Ohio. Rotary Power Plows. Sep. 20, 1870.

Claim. 1. The revolving head or heads I J K, armed with the series of movable plows or

shares M M', adapted to operate upon the soil, in the manner set forth.

2. The described arrangement of one or more series of plows M or M', rotating head I J K, and fixed cam N, whereby the said plows are subjected, during the advance of the machine, to a continuous rotation, partly in and partly out of the ground.

3. In the described combination, with the elements of the clause next preceding, the described arrangement of adjustable roller O, whereby the penetration of the plow is controlled.

**107,777. LOUIS HOMRIGHOUSE,**

Baltimore, Ohio. Cultivators. Sep. 27, 1870.

Claim. An enlarged bearing-wheel, H, combined with the draft-beam A of a cultivator-plow, about midway of its length, to carry and support the machine, all substantially as herein described.

**109,273. JOHN THOMPSON,**

Louisville, Ky. Rotary Pulverizers. Nov. 15, 1870.

Claim. The combination of the pulverizer E, the gearing by which it is rotated, and the several devices for adjusting and maintaining it in position, all constructed, arranged, and operating substantially as herein described.

**109,741. NELSON T. JUDD,**

Washington, D. C. Rotary Plows. Nov. 29, 1870.

Claim. 1. The frame F, pivoted centrally on the axle B having a series of rotary plows mounted upon a transverse shaft at its rear end, and so arranged that by adjusting its front end, the plows can be raised or lowered at will, substantially as described.

2. The arrangement of a series of gangs of rotary plows substantially as described, whereby the plows of each gang may be adjusted to cut at any required depth, independently of the other gangs in the series, so that, while one side of the machine is lower than the other, the whole series of plows may be adjusted to cut at a uniform depth, as set forth.

3. The oscillating frame F, having levers m, with their pins n, and springs l attached thereto, in combination with front frame or reach C having the screw G and inclines p thereon, and the sliding clutches i and wheels D, with the clutches h, all arranged to operate as and for the purpose set forth.

**110,109. HENRY BELMONT,**

Romford, England. Machines for Tilling or Cultivating. Dec. 13, 1870.

Claim. 1. An improved cultivating or digging-machine, constructed substantially as described, having a number of strong forks f f f f, fixed in a frame, d, which is suspended within another frame, c, upon the arms of crank-axes b b of carriage-wheels a a, arranged so that at each turn of the wheels with the machine moving forward the forks f f are, by means of the crank-axes, forced into and brought out of the ground to break up the soil.

2. The digging forks f f, in combination with the suspended frame d and the crank-axes b b, arranged and operating as and for the purpose described.

3. The cultivating-machine, so constructed as to allow the use of interchangeable parts, as described.

**112,913. LAWRENCE F. FRAZEE,**

Jersey City, N. J. Plows. Mar. 21, 1871.

Claim. The diggers J, the colters H, and the plows B, arranged in relation to each other substantially as described.

**113,190. JOSEPH R. MORRIS,**

Houston, Texas. Rotary Plows. Mar. 28, 1871.

Claim. A shaft having thereon a series of disks, to the circumference of each of which are attached at an obtuse angle to the radii spades, operating as set forth.

**127,453. HENRY W. BOWEN,**

Providence, R. I. Cultivators. June 4, 1872.

Antedated May 29, 1872.

Claim. 1. The automatic cultivator, substantially as shown and described or, in other words, the combination of the locking frame F and the guide bar d, provided with operative mechanism in substance as explained, with the carriage C, and its series of rotary tool shafts G, having mechanism for operating them essentially as set forth, and described.

2. In combination therewith, I claim one or more posts, B, arranged in the manner and for the purpose as shown and explained.

**127,677. ERASTUS T. BUSSEL,**

Indianapolis, Ind., assignor to W. M. Bussell, same place. Agricultural Implements. June 11, 1872. Antedated May 25, 1872.

Claim. 1. The disk L, composed of the metallic hub A and the narrow metallic continuous rim B, secured to the end of the light metallic spokes C at a lateral angle of from five to fifteen degrees to the line of the spokes C, and beveled from its inner to its outer edge to form a cutting periphery, for the purpose hereinbefore set forth.

2. The right-angled adjustable bracket D, having its horizontal face E serrated or roughened and provided with the slot F, and its perpendicular face G, provided with the axis H, in combination with a cultivator-disk having a cutting periphery, for the purpose hereinbefore set forth.

**127,746. MAXIME DECELLE,**

Newburg, Ohio. Rotary Cultivators. June 11, 1872.

Claim. The cylinder C, provided with flat and sharp teeth, alternately arranged and mounted in the frame B, having a series of teeth k, and hinged, as shown, to the main frame; said frame B also carrying the traction driving wheels D, and having combined with it the lever g, for raising or lowering the frame by a single movement, and device h for supporting the frame when adjusted, all constructed, ar-

ranged, and operating substantially as herein described.

**128,588. ERASTUS T. BUSSELL,** Indianapolis, Ind., assignor to W. M. Bussell, same place. Revolving Plows. July 2, 1872. Antedated June 15, 1872.

Claim. 1. A revolving disk, A, composed of the metallic zone C, connected with a hub by radial spokes, and provided with a series of ribs or flanges B, each of which extends across the inner face of the zone C in the direction of a cycloidal curve, for the purpose hereinbefore set forth.

2. The rudder-wheel J, provided with the vertical flange K, and supported in bearings in the adjustable bifurcated bracket L, the traction-arm M, the vibrating lateral pressure arm N, and the tiller O, provided with the rods Q, all arranged relatively one to the other, in combination with the plow-frame, as described.

**129,206. WILLIAM E. BLEECKER,**

Brooklyn, assignor of three-fourths of his right to Henry Bleeker, trustee, New York City, G. M. Bleeker, Coeymans, and Edward Bleeker, trustee, Whitestone, N. Y. Rotary Plows. July 16, 1872.

Claim. 1. The combination of the cams *m* and *k* with the plowing teeth *l l*, pivoted alternately on the two sides of the wheel *e* as and for the purposes hereinbefore described, and operating in the manner set forth.

2. The combination of the levers *d* and *d'* and the wheels *b b'* with the lever *h* and plowing wheels *e e'*, as and for the purposes hereinbefore set forth.

**131,160. GUSTAVE A. FORSGARD,** Houston, Tex. Cultivators. Sep. 10, 1872.

Claim. 1. The rods or spikes *c*, attached at their inner ends to the ring *f* and passing through the rim of the wheel *c* in combination with the eccentric *g* rod *g'* and lever *h*, for projecting such spikes when the cultivator is in use or withdrawing them at the side in contact with the earth when going to or returning from the field as set forth.

2. The revolving cultivator, made of a series of changeable and reversible spades or knives with share shaped ends, retained in position between rings, and removable, substantially as specified, so that the arrangement of the spades may be varied as specified.

3. The frames *m*, connected at their upper ends to the frame *a* and carrying at their lower ends the shaft *o* of the revolving spades or knives, in combination with the gearing 10, 12 and 15, and operating mechanism for moving said frames *m* and raising or depressing the said knives, substantially as set forth.

4. The intermittent reciprocating stirrer *t*, constructed and operated substantially as and for the purposes set forth.

**131,401. WILLIAM B. HYDE,** Oakland Cal. Rotary Sod-Cutters. Sep. 17, 1872.

Claim. 1. In a sod-cutter, the two rotary cut-

ters G F, revolved in close proximity to each other and in opposite directions, upon a common centre by means of the shaft E, and hollow shaft B, in the manner and for the purpose above specified.

2. The hollow shaft B, with its rotary cutter G, and bevel wheel D, and the shaft E with its rotary cutter F, and bevel wheel H, in combination with the transverse shaft A, carrying the bevel wheels O' and I, combined and arranged in a rotary sod cutter, substantially as and for the purposes above described.

**135,002. JAMES W. MILROY,** Haywood, Cal., assignor to himself, William R. Michener, and C. L. Howard, same place. Rotary Cultivators. Jan. 21, 1873.

Claim. The frame A and axle B, wheels D D', and spindles C C', in combination with the independent revolving plows or teeth I I on the axle, and arranged to be raised or lowered by lever E, all substantially as and for the purpose herein specified.

**135,174. ALCIDE TROUARD,** New Orleans, La. Sugar Cane Cultivators. Jan. 21, 1873.

Claim. The improved machine for grubbing sugar cane stubble, the same consisting of frame G G', runners I I, and the cylinder A provided with teeth B, having points constructed as described, said cylinder being mounted on the axle shaft C journaled in the pivoted levers D, which are adjusted at their free ends by the standards E and pins d, all as shown and described.

**135,664. CHARLES N. POUNDSTONE,** Livonia, Ill. Rotary Cultivators. Feb. 11, 1873.

Claim. 1. The wheel D having arms e provided with slots g, in combination with teeth f, so as to render the latter adjustable, substantially as and for the purposes set forth.

2. The spindle d with shoe a, provided with pivotal rib s and slot k, in combination with wheel D, bolt c, and stem C, substantially as and for the purpose set forth.

**138,931. JOHN H. RANDOLPH, Jr.,** Bayou Goula, La. Wheel-Cultivators. May 13, 1873. Filed Feb. 8, 1873.

Claim. 1. The combination of the gear wheels T X, shaft W, and bracket V, with the propeller or screw blades Y Z A' and shaft E of the drive wheel D, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the keeper or long bearing G and loop B' with the adjustable standard H, shaft E of the drive wheel D, and bracket V of the propeller shaft W, substantially as herein shown and described, and for the purpose set forth.

**139,013. ROBERT McKINLEY,** Hyde Park, N. Y. Rotary Cultivators. May 20, 1873. Filed Feb. 7, 1873.

Claim. The hoe  $\alpha$ , and its rock shaft and links, in combination with the rotating rake I, as and for the purpose set forth.

**142,094. CHARLES T. ELLISTON,** Clinton, No. Rotary Plows Aug. 26, 1873. Filed June 9, 1873.

Claim. 1. The double set of picks, having a forced rotation, arranged relatively to each other in the rear of the colters and in advance of the driving wheels, substantially as shown and described.

2. The combination of the frame  $\epsilon$  1, pivoted upon the gear shaft 2, with the pivoted frame  $\epsilon$ , and connecting rods 6, and a suitable lever for raising and lowering the picks and colters, substantially as specified.

3. The combination of the frame  $\delta$ , having the ratchet-bars secured to its rear and pivoted frame  $\epsilon$ , with pivoted frame  $\epsilon$  1 connecting rods, and lever for raising and lowering the picks and colters, substantially as shown.

**144,346. ALLAN S. McDONELL,** Osgood Township, Canada. Cultivators. Nov. 4, 1873. Filed June 10, 1873.

Claim. 1. A cultivator having its frame A mounted centrally on two wheels, with an adjustable caster wheel, N, supporting its rear end, and having the rotating toothed cylinder J suspended in bearings from the rear end of said frame in combination with the fixed teeth, all constructed and arranged to operate substantially as described.

2. In combination with the frame A having the cylinder J and teeth arranged to operate as described, the adjustable seat V, and the tongue hinged to the frame at or near its center, whereby more or less weight can be applied to the cylinder, and the frame with its attachments be left free to follow the undulations of the surface, as set forth.

**144,419. JOHN D. STARRITT,** Chicago, Ill. Rotary Cultivators. Nov. 11, 1873. Filed May 17, 1873.

Claim. In a rotary cultivator, the rotary knives F F, constructed and arranged substantially as described, and each having a free, independent, vertically yielding movement with relation to the other by reason of the attachment of each to a corresponding rotary shaft by means of a universal joint, and by reason of the arrangement of the stems G G in the yokes H H, substantially as and for the purposes specified.

**145,177. ANDREAS B. HOFF-MEYER and JAMES SCHMIDT,** Copenhagen, Denmark. Rotary Plows. Dec. 2, 1873. Filed Nov. 20, 1873.

Claim. The combination of the revolving cutters E, revolving shares A, and stationary shield or deflector D, all arranged and operating substantially as and for the purpose specified.

**145,737. JOHN G. JONES,** Falmouth, Mass. Spading Machines. Dec. 23, 1873. Filed Apr. 7, 1873.

Claim. 1. In a spading machine, the combination of the vertically arranged spade  $\alpha$ , pivoted to the crank C, having balance wheel b, and operated by the pinion wheels  $\beta\beta$  gearing in the driving or traction wheels B B, with the braces d and thimble e, all arranged and operating as hereinbefore set forth.

2. The combination of catches upon the inside of the pinion wheels  $\beta\beta$ , and of the spring head pinch pins s s, by the insertion or removal of which the machine is put into or out of gear, as hereinbefore set forth.

**147,992. LUCIEN SONIAT,** Jefferson Parish, La. Cane Cultivators. Feb. 24, 1874. Filed Aug. 12, 1873.

Claim. 1. The longitudinal shafts K, having hubs provided with spring teeth g, in combination with the branched hanger L, journal boxes I, pinion wheels N, and rotary shaft E', substantially as and for the purpose described.

2. The combination of the longitudinal toothed shafts K, pinion wheels N, rotary cultivators E F, bars D, standards H, yokes G, and beam A, substantially as and for the purpose described.

**148,060. ERIK M. HESSELBOM,** Ullawara, La. Cotton Cultivators. Mar. 3, 1874. Filed June 7, 1873.

Claim. The combination, in a cultivator, of the band wheels C C, the movable frames H H, and cutters N N, as herein shown and for the purpose set forth.

**151,510. JULIAN H. PITKIN,** Akron, Ohio. Rotary Plows. June 2, 1874. Filed Apr. 24, 1874.

Claim. 1. The combination of the plow cylinder and plows revolving around the shaft or journals  $\alpha$ , the cranks or cams C, turning with said shaft or journals, and the journals  $\epsilon$ , on which the main wheels are supported and turn, eccentrically arranged on said cranks or cams, as and for the purpose described and represented.

2. In combination with the pole or double-tree, to which the team is hitched, and which is movable longitudinally independent of the main frame, and with the cranks or cams C, the chains and pulley wheels for applying the power of the team to the raising of the plows from the ground, substantially as described.

**152,834. J. C. ELLIOTT,** Simpson County, Ky. Cultivators. July 7, 1874. Filed May 12, 1874.

Claim. The combination of parallel frames A, revolving harrows B d x, connecting arch rods  $\alpha$ , and casing C, all constructed and operating as and for the purpose specified.

**154,168. W. E. BLEECKER,** Brooklyn, assignor of part his interest to H. Bleeker, Trustee, New York City, George M. Bleeker, Coeymans, and E. Bleeker, Trustee, White-stone, N. Y. Rotary Plows. Aug. 18, 1874. Filed Apr. 11, 1873.

Claim. 1. The wheels d carrying the plow-

ing forks  $c c$ , in combination with levers  $j j$  and catches  $k k$ , the whole constructed and operating substantially as hereinbefore set forth.

2. The wheels  $d d$ , arranged as described, in combination with the center disk  $\alpha$ , as and for the purposes described.

3. The springs  $p p$  in combination with the frame  $i$ , tongue  $m$ , and wheels  $d d$ , carrying plowing forks  $c c$ , substantially as hereinbefore set forth.

**154,489. HEZEKIAH JONES and WILLIAM K. YARD,** Rockford, Ill. Rotary Plows. Aug. 25, 1874. Filed May 18, 1874.

Claim. 1. The combination, in a revolving plow, of the hand bell crank lever  $D D'$ , guide block  $d'''$ , and circular groove-guide  $D'$ , with the revolving plow shaft  $C'$ , carrying the plows  $E$ , constructed and operating as and for the purpose described.

2. The combination of the cross girt or knife bar  $F$  with knives  $f$ , links  $F'$ , plow shaft  $C'$ , carrying plows  $E$ , and pivoted hand bell crank lever  $D D'$ , constructed as and for the purpose described.

**156,268. A. F. BATCHELLER,** Finchford, Iowa. Corn Plows. Oct. 27, 1874. Filed July 18, 1874.

Claim. 1. The heads  $G G$ , vertically adjustable on the shafts  $F F$ , in combination with rods  $J J$  and nuts  $h h$ , and yokes  $D D$ , as and for the purposes described.

2. Rods  $J$ , connected to handles  $K$  and combined with vertically-adjustable heads  $G$  and laterally-adjustable yokes  $D$ , as and for the purposes described.

3. Supporting bar  $b$ , in combination with yokes  $D$  and shovel carrying heads  $G$ , substantially as described.

4. The seat  $I$ , on rod  $I'$ , in combination with pendent  $k$  and eyebolt  $k'$ , substantially as described.

**157,893. HENRY VON PHUL, Jr., and JAMES MALLON,** Hollywood, La. Sugar-Cane-Stubble Diggers and Cultivators. Dec. 15, 1874. Filed July 25, 1874.

Claim. 1. In a sugar-cane-stubble digger, the curved teeth  $E'$ , the disks  $E$ , having enlarged notches or slots in their periphery, and the revolving shafts  $D$ , said disks being arranged alternately in position on the shafts, as shown and described.

2. The combination of the digging mechanism formed of the teeth  $E'$ , disks  $E$ , and shafts  $D$ , the sliding blocks  $a$ , guides  $b$ , link  $d$ , crank shaft  $e$ , lever  $f$ , and curved notched rack  $g$ , as shown and described, whereby the digger can be adjusted to and held at any desired height.

**168,482. WILLIAM H. FOYE,** San Francisco, Cal. Rotary Plows. Jan. 5, 1875. Filed Dec. 22, 1874.

Claim. 1. A rotary plow consisting of a series of concavo-convex cutting blades arranged spirally around a supporting and driving shaft,

substantially as described, for the purpose specified.

2. The spiral cutting blades adapted for adjustment upon the shaft, for the purpose of regulating their cut, and the consequent width of the furrows, substantially as described.

3. The combination of the adjustable collars and slotted wedges with the concavo-convex cutting blades and the main supporting shaft, substantially as described, for the purpose specified.

4. A rotary plow having two sets of concavo-convex blades arranged spirally around the supporting shaft, so as to extend outward in opposite directions from the center thereof toward the ends, substantially as described, for the purpose specified.

5. The blades of a rotary plow, each made with a spiral curve, and with a concavo-convex form transversely, substantially as described, for the purpose specified.

**158,663. N. S. WOOD,** Boone County, Mo. Revolving Cultivators. Jan. 12, 1875. Filed July 16, 1874.

Claim. 1. The combination of frames  $1 1$ , connected by yoke  $2$ , shafts  $8 8$ , universally jointed hoe shafts  $9 9$ , pivoted lever or handle  $13$ , and adjustable rods  $11 11$ , as and for the purpose described.

2. In combination with the driving wheels, frames, and arched connecting bar, the geared shafts  $8 8$ , universally jointed to the rotary shafts  $9 9$ , as and for the purpose described.

**163,061. GEORGE W. FENLEY,** Nacogdoches, Tex. Rotating Cultivators and Choppers. May 11, 1875. Filed Mar. 6, 1875.

Claim. 1. The combination of the sliding bars  $H$ , the gear wheels  $E F K L$ , and the plow shaft  $M$  with the frame  $D$  and wheels  $A$ , substantially as herein shown and described.

2. The combination of the rack bars  $I$  and gear wheels  $J$  with the frame  $D$  and the sliding bars  $H$ , that carry the gearing  $F K L$  and the plow shaft  $M$ , substantially as herein shown and described.

**163,346. E. C. WINTERS,** Coleta, Ill. Revolving Cultivators. May 18, 1875. Filed Feb. 3, 1875.

Claim. In combination with the tilting frame  $I$ , the colters  $K R$ , carried by said frame, the frame  $S$ , revolving and spirally arranged spades  $d' d'$ , carried by the frame  $S$ , the driving gearing, and the adjusting mechanism, all operating together substantially as described, in the same implement.

**164,428. JAMES H. COON,** Des Moines, Iowa. Rotary Cultivators. June 15, 1875. Filed Aug. 6, 1874.

Claim. 1. The auxiliary frame  $E$ , carrying the cog wheels Nos. 1 and 3, and the crank wheels  $g$ , in combination with the cog wheels No. 2 and pinion  $f$ , substantially as described, to suspend and operate a series of spades.

2. The combination of the spade carrying case F with the crank wheels g, substantially as described, to alternately thrust down and raise up a series of spades.

3. The sliding frame G, carrying a series of spades k, in combination with the suspended case F, substantially as described,

4. The frame or forked bars n n, when pivoted to the fixed shaft d d, at their upper and front ends, and connected with pitman or rods o o, extending from their lower and rear ends to the adjustable auxiliary frame E, for the purpose of carrying rotary cutting cylinders and adjusting them relative to the series of spades k, substantially as and for the purposes specified.

5. The combination of the hand wheel M, pinions y, shaft x, auxiliary frame E, and rack u, substantially as described, and for the purposes specified.

**164,960. ALEXANDER F. BATCHELLER,** Cedar Falls, Iowa. Corn Cultivators. June 29, 1875. Filed Apr. 24, 1875.

Claim. 1. Longitudinally-adjustable axles a, in combination with laterally and vertically adjustable spindles G hung from the axle B, substantially as described.

2. Handles E, adjustably pivoted to frame D', and connected to the spindles G, in combination with the suspension-links u, rods o, and spring s, substantially as described.

3. In combination with the revolving plows h, the rolling-clearers p, and the segment-rack J, substantially as described.

**166,721. WILLIAM C. B. RICHARDSON,** Cleveland, Ohio. Rotary Spaders.

Aug. 17, 1875. Filed Jan. 11, 1875.

Claim. 1. In combination with the hinged spades J J', the scraper, consisting of the pivoted frame M and hoes d', arranged to operate substantially as described, and for the purpose specified.

2. The shaker K, as arranged in relation to, and in combination with, the spades J', as and for the purpose specified.

**169,499. JOHN K. UNDERWOOD,** Sauk Centre, Minn. Rotary Gang-Plows.

Nov. 2, 1875. Filed July 31, 1875.

Claim. 1. The frame A C, having two sets of axles, D R, hook-bolts U, standard M, and keepers K, adapted to receive rotary plows or cultivators, in the manner described.

2. The combination, with rotary plows H, of beam I, pivoted upon the frame at J, and swinging in keepers K, the forked lever L, the bars O, standard M, and pin N, as and for the purpose specified.

**7,865. JOHN K. UNDERWOOD,**

Anoka, Minn. Rotary Gang-Plows. Patent 16,499. Nov. 2, 1875. Reissued Aug. 28, 1877. Filed July 24, 1877.

Claim. 1. In a rotary plowing-machine, carried on truck-wheels, the rotary plowing-wheels H H, with flaring rims, having sharp, smooth, and perfectly circular peripheries,

mounted on truck-wheels, and working in planes diagonal to the line of draft, substantially as described.

2. The rotary plowing-wheels O O P P, arranged in pairs upon a frame mounted upon truck-wheels B B, and the wheels in each pair diverging from each other from the ground upward, substantially as shown and described.

3. The combination of the frame A, truck-wheels B B, hook-bolts U, lever V, standard M, and wheels O O P P, combined and arranged to operate substantially as described.

4. The combination of the rotary plowing-wheels H, pivoted beams I, keepers K, lever L, and standard M, all mounted on truck-wheels B B, and combined and arranged to operate substantially as described.

5. In combination with the truck-wheels B B, frame A, and plowing-wheels H H, set diagonally to the line of draft, I claim the the caster-wheel F, with its flange f, all arranged to operate substantially as described.

6. The combination of the frame A C, having two sets of axles, D Q, hook-bolts U, standard M, and keepers K, adapted to receive rotary plows or cultivators in the manner described.

7. The combination, with rotary plows H, of beams I, pivoted upon the frame at J, and swinging in keepers K, the forked lever L, bars O, standard M, and pin N, as and for the purpose specified.

**170,661. D. W. BRODNAX, Sr., Rockdale, Tex.** Rotary Spade Cultivators. Dec. 7, 1875. Filed Sep. 20, 1875.

Claim. 1. The combination, with the frame D, with supporting arches E E', of the compound lever F and yoke I, for raising the cultivator wheel, as described.

2. The rotary spade cultivator composed of frame D, supporting arches E E', jointed hinged hand lever F, yoke I, rods H, and wheel G, all constructed, arranged, and adapted to operate as and for the purpose described.

**174,245. GEORGE E. HOPKINS,**

Walla Walla County, Wash., assignor of one-half his right to J. D. Cook, same place.

Rotary Cultivators. Feb. 29, 1876. Filed July 7, 1874.

Claim. 1. The cylinder A a, revolving loosely upon a stationary shaft, E, slotted at each side around its periphery, and constructed around each head with guides A', as and for the purposes described.

2. The arms C, constructed with slots C', stud G, pin e, and hole c', as and for the purposes described.

3. The stop arm D, with roller stud G', as and for the purposes described.

**174,796. WILLIAM H. FOYE,** San Francisco, Cal. Rotary Plows. Mar. 14, 1876. Filed Mar. 3, 1876.

Claim. The combination of the spirally curved steel cutting and re-enforcing strip or strips C, with the concavo-convex spiral cutters

A of a rotary plow, substantially as described, for the purposes specified and set forth.

**176,897. JAMES C. STONE,** Leavenworth, Kans. Rotary Cultivators. May 2, 1876. Filed Feb. 5, 1876.

Claim. The combination of a series of circular saws, I, and the shaft G with the wheels, axle, and frame of a plow, substantially as herein shown and described.

**177,668. JOHN K. UNDERWOOD,** Sauk Centre, Minn. Rotary Plows. May 23, 1876. Filed Mar. 13, 1876.

Claim. 1. In combination, in a rotary gang-plow, the bent horizontal arm E, rigidly attached at its forward end to the truck, the diagonal brace F attached to the rear part of the arm E and to the forward part of the implement, the bent vertical part of the said brace forming the plow-beam guards or keepers, and the pivoted and diagonally-arranged plow-beam, having its free end arranged in the said keepers, substantially as and for the purposes specified.

2. The combination of the bent arm E, pivoted plow-beam I, beam-guide F, lever H, ratchet G, pawl a, piece a', connecting-cord b, and dish-shaped plow-wheels J J, set diagonally to the line of draft, all arranged substantially as described, in a rotary gang-plow, for the purposes set forth.

3. The combination of the plow-beam I, having a broad or flat central part, the separate axles c c, elongated loops d d, nuts e e, and wheels J J, journaled adjustably on the single beam, all substantially as and for the purposes specified.

**179,320. THOMAS A. KERSHNER,** Seymour, assignor to himself and Alexander Carr, Medora, Ind. Revolving Harrows and Pulverizers. June 27, 1876. Filed Jan. 15, 1876.

Claim. 1. The teeth H, made with curved forward edges, concaved rear edges, and broad heads pointed to the rearward, in combination with the cylinder G, substantially as herein shown and described.

2. The combination, with axle B and frame C, of the hinged frame E and pendent hinges F, arranged substantially as and for the purpose specified.

**179,427. THOMAS ROUSE,** Indianapolis, Ind. Rotary Harrows. July 4, 1876. Filed Jan. 21, 1876.

Claim. 1. In a rotary harrow, the combination of the master wheels A', pinions R<sup>1</sup>, shaft R<sup>2</sup>, harrow heads R R, and harrow bars P, arranged to be revolved in the adjustable boxes R<sup>3</sup>, secured in the hangers C C<sup>2</sup> C<sup>3</sup> in the manner shown, for the purposes set forth and described.

2. In combination with the adjustable boxes R<sup>3</sup> and hangers C, the lifting rods D D, provided at their upper ends with a rack which engages with the pinions E E that are operated by means of the lever w, in the manner shown for the purposes set forth and described.

**179,918. JACOB HAYNES,** Basnettsville, W. Va. Cultivator-Plows and Harrows. July 18, 1876. Filed May 1, 1876.

Claim. 1. The combination of the stationary rods D, the chains F, the connecting rod G, and the lever H, with the main frame B and with the frame E, that carries the plows I J K L, substantially as herein shown and described.

2. The pivoted frames X, and spring-catch bar Y, in combination with the journals of drive-wheels A, frame E, and rotary plows L, substantially as and for the purpose specified.

**181,870. DAVID B. SHERMAN,** Castleton, Vt. Revolving Garden and Field Hoes. Sep. 5, 1876. Filed July 15, 1876.

Claim. A frame consisting of sideboards A, front end board B, rear top board C, and handles K, in combination with roller, rotary hoe, and wheel-axle substantially as and for the purposes specified.

**181,959. WILLIAM McC. MATHES,**

Caldwell, Tex., assignor of a part of his right to Thomas M. Hunt and William Philip, Sr., same place. Combined Spading, Plowing and Stalk-Cutting Machines. Sep. 5, 1876.

Filed July 5, 1876.

Claim 1. A series of spades arranged in a plane parallel with the axis of the machine, and interposed spades in planes at right angles thereto, all attached to a reciprocating cross-bar and operating as herein set forth.

2. The combination of the range of spades N O and the range of plows T, operating to loosen and turn the ground in the manner substantially as herein described.

3. The combination, with the spades N O, of the knuckle joints R and springs S, constructed and applied as specified, to permit the spades to bend backward on striking an impenetrable body, and regain their operative position.

4. The combination of the skeleton roller Y, spades N, and plows F, as and for the purpose set forth.

5. The combination of the clutch wheel or pinion F, for throwing the spades in and out of gear, and the lock W w, for securing the crank shaft k so as to retain the spades in their elevated position.

**181,976. PETER D. PELSOR** and **HENRY C. PELSOR,** Metamore, Ind.

Rotary Spaders, Stalk Cutters, and Field Rollers. Sep. 5, 1876. Filed Jan 15, 1876.

Claim. 1. The roller A, provided with rows of alternating slots a<sup>1</sup> in its face, and with corresponding radial slots a<sup>2</sup> in its ends, the side plates C, provided with circular grooves c<sup>1</sup> and eccentric branch grooves c<sup>2</sup> in their inner surfaces, the cutters G, and the cutter bars H, in combination with each other, substantially as herein shown and described.

2. The combination, with the roller having slots a<sup>1</sup> a<sup>2</sup>, the bars H, and the spades G, of the side plates C C, having eccentric grooves

*c<sup>2</sup>*, and the guide blocks I, operated by mechanism J K L, as and for the purpose specified.

3. The slots *c<sup>2</sup>*, formed in the upper part of the side plates, and their notched cap blocks P, to enable the cutter bars and cutters H to be withdrawn from the roller A, substantially as herein shown and described.

**187,769. WILLIAM T. NICHOLS,** Chicago, Ill. Rotary Harrows. Feb. 27, 1877. Filed Dec. 28, 1876.

Claim. 1. The cross bars *c*, provided with inclined lugs or arms *c'*, in combination with the spirally wound metallic strips F, substantially as and for the purpose set forth.

2. The screw or spiral rotary scarifiers E, in combination with the jointed adjustable shaft C, substantially as and for the purpose set forth.

3. The rotary screw scarifiers E, in combination with the jointed shaft C, adjustable hanger D, and tongue B, substantially as and for the purpose set forth.

4. The cam I, attached to one end of a revolving scarifer, E, in combination with the sliding adjustable rock shaft K and seeding slide *h*, substantially as and for the purpose set forth.

**190,796. JOHN R. TILLEY,** Demerara, British Guiana, South America. Cultivators. May 15, 1877. Filed Oct 7, 1876.

Claim. 1. The long cutting-knives K and hubs J, on shaft G, having large chain-wheel F and made free to rise and fall in slotted bearings, in combination with the small bearing-wheels A and axle B, having the small chain-wheel D and the endless chain E, whereby the knives are given a slow rearward motion beside that caused by the forward progress of the machine.

2. The combination of lever N, rock-shaft M, and slotted arms L L, with the shaft G, that carries the plows, sliding bearings H, slotted brackets I, and the frame C, substantially as herein shown and described, for the purpose specified.

**191,332. WM. FREEBORN,** San Francisco, Cal. Rotary Plows. May 29, 1877. Filed May 17, 1875.

Claim. 1. The horizontal shaft or hub A, with its circular colter or land-side disk C, and spiral mold-boards B B, said spiral mold-boards being continuous, so as to form a rotary plow, substantially as described.

2. The offset D, arranged between and in combination with the spiral concavo-convex mold-board and hub A, as and for the purpose described.

**196,617. JESSE ADAMS,** Lewisville, assignor of one-half his right to John S. Smear, Waveland, Ind. Soil Pulverizers. Oct. 30, 1877. Filed Mar. 21, 1876.

Claim. In a machine for pulverizing the soil, the combination of the frame N, pivoted on the axle, the adjustable draft-pole S, and

standards Q Q, with cylinders F and G, having teeth H H, and bars J J, having knives I I, substantially as herein shown and described.

**198,163. H. SKILLINGS,** Hutchinson, Minn. Revolving Plows. Dec. 11, 1877. Filed Oct. 13, 1877.

Claim. The independently rotating wheels D, having narrow and beveled rims, in combination with loose bands H, arranged between the wheels, substantially as and for the purpose set forth.

**198,339. C. C. BREEDEN, and OWEN T. WHEELER,** Bedford, Ky. Rotary Cultivators. Dec. 18, 1877. Filed Nov. 6, 1877.

Claim. The combination of the sleeves G, the bent shaft H, and the plow-wheels I J, with the swinging bars F, the loops E, the axle B, thebars or frame C D, and the driving gearing K L A, substantially as herein shown and described.

**198,540. JOHN GRANER,** New Orleans, La. Revolving Cultivators. Dec. 25, 1877. Filed Aug. 20, 1877.

Claim. 1. The frame D, having tongue E, arranged to be attached to either end of the machine, and the axle B, having bearing wheels A and gear-wheel I, in combination with the hinged frame F, shafts G m, gear wheels h k l, chain R, and crank-shaft T, substantially as described.

2. The blades *x*, of the shape described, attached to the shaft *m* in propeller form, and arranged to revolve in the direction of the line of draft, and made reversible to allow their points or opposite ends to enter the ground first, substantially as described.

**203,172. LOUIS MARTIN,** Lyons, N. Y. Machines for Exterminating Noxious Grasses. Apr. 30, 1878. Filed Jan. 2, 1878.

Claim. 1. In a machine for exterminating noxious grasses, the cylinder D, constructed of rings or disks *x x*, resting upon the shaft and clamped at the ends, the said rings or disks being bolted together in pairs, and securing the teeth *i i* between them, as shown and described and for the purpose specified.

2. The disks or rings *x x*, having plane abutting faces, clamped together in pairs by the bolts *z z*, and provided with the sockets *r r*, enlarged at their inner ends to receive and hold the corresponding shanks of the teeth *i i*, as shown and described, and for the purpose specified.

3. The combination, with the cylinder D and clearers *ll* of the platform I, and endless apron K, the platform being attached to the springs *uu* at the inner end, and adjustable both at the inner and outer ends of the levers L M, as shown and described, and for the purpose specified.

**205,969. DANIEL LOCKE,** Creston, Ill. Clod Crushers. July 16, 1878. Filed June 24, 1878.

Claim. The combination of the frame *a*, toothed rollers *g*, driving wheels *j*, adjustable axles *h*, gears *i* and *l*, and caster wheel *r*, substantially as set forth.

**206,185. JAMES MALLON,** Baton Rouge, La. Cultivators. July 23, 1878. Filed Dec. 22, 1877.

Claim. The improved cultivator herein described, provided with adjustable beams *L L'*, each furnished with revolving cutters, the blades of which are curved, substantially as described, and operated on an adjustable bearing, for the purpose set forth.

**206,974. CHARLES E. SACKETT,** Matilda Furnace, Pa. Cultivators. Aug. 13, 1878. Filed June 22, 1878.

Claim. 1. In a tilling implement, the combination of a revolving cutter, a revolving spade, and a sifting grate, substantially as described.

2. In a tilling implement, the combination of a revolving cutter, a revolving spade, a sifting grate, and a hillng attachment, substantially as described.

3. In a rotary tilling implement, the combination, with the revolving cutter and revolving spade, of the side frames 27 28, forming bearings for their journals and boxes which inclose the driving train of gear wheels connecting the two shafts, and forming, with the handles 29 30, levers for controlling the depth of the spade and cutter, and for lifting them from the earth either separately or jointly, substantially as shown and described.

4. In a tilling implement, a revolving cutter, revolving spade, wheels 10 11, side frames 27 28 and handles 29 30, the connecting bars 17 18, and ratchet segment 33, combined and arranged substantially as shown and described, whereby said frames and handles may act as levers of the first and second orders alternately in controlling the movements of the implement.

5. In a tilling implement, substantially as shown and described, the combination, with the revolving cutter and revolving spade, wheels 10 11, side levers, and handles, of the draft bars 17 18, which move independently of the side frames or levers, and to which the draught shall be applied at one of the adjustable attaching holes, whereby the thrust of the revolving cutter into the earth is regulated, and the fulcrum of the wheels 10 11 may be varied along said bars to raise the revolving cutter substantially as described.

6. In a tilling implement, a revolving cutter and a revolving spade combined together for conjoint operation, the said parts being constructed and hung with relation to each other so that the spades shall play within the spaces afforded between the cutters, and the cutters shall run close to the axis of said spade, whereby the earth lifted by the spades shall be confined thereon, substantially as described.

**208,246. DAVID H. LANE,** Anoka, Minn. Rotary Plows. Sep. 24, 1878. Filed June 13, 1878.

Claim. 1. In a rotary plowing implement carried on draft-wheels, the combination of a rotary plowing-wheel, *K*, having a concavo-convex cutting-edge arranged next to the soil, and without the interposition between it and said wheel of other parts, and for traveling on the bottom of the furrow, and having its flaring concavity turned partly forward, the rotatively-adjustable and obtusely-bent axle *I*, carrying the said plowing-wheel, and having thereon the tapering collar *J*, and adapted at one end to receive a wrench, and the axle-box *F*, vertically adjustable with relation to the said draft-wheels, the said box being provided with a clamp for rendering the said axle either loose or rigid therein, substantially as and for the purposes specified.

2. In combination, the caster-wheel *S*, mounted on the rotary stock or carrier *S'*, having thereon the rigid notched collar *k*, the pivoted lever *Q*, applied to the frame carrying the plow-disks, the bolt or slide *f*, carried by the said lever, the fixed serrated plate *R*, the lever *U*, pivoted to the lever *Q*, and the fixed loop *V*, substantially as and for the purposes specified.

3. In combination, the supplemental frame *E'*, provided with an axle-box, *F'*, and carrying a vibrating lever, *Q'*, having on its lower end the caster *S*, the removable half-axle *B* and its draft-wheel, the removable dish-shaped plowing-wheel *K*, the removable axle-box *F* and its clamps, the removable obtusely-bent axle *J*, and a locking device for engaging the lever *Q'*, substantially as and for the purposes specified.

4. The share *K'*, arranged behind a rotary concavo-convex or dish-shaped plow-disk, and placed for cutting through and under the sod or land next to the furrow turned therefrom by the disk, substantially as and for the purposes specified.

5. A cutting blade or share mounted on a vertically-vibrating caster-stock or carrier, in combination with a rotary concavo-convex or dish-shaped plow-disk, the said share being arranged to cut under the sod or land before the sod or land so cut is turned by the said disk, substantially as and for the purposes specified.

**213,242. NELSON PALMER,** New York, N. Y. Rotary Gang-Plows. Mar. 11, 1879. Filed Jan. 6, 1879.

Claim. 1. In an earth-turning machine, one or more shares immediately preceding, but detached from and adjustable independently of, one or more disks, substantially as shown and described.

2. In an earth-turning machine, a series of concave disks, with convex centers on their front or earth-turning surfaces, attached to a separate frame and adjustable independently of shares or cutting devices which immediately

precede them, substantially as and for the purpose set forth.

**3.** In an earth-turning machine, a series of shares or cutting devices pivoted or hinged to the front end of a frame, which is pivoted at its rear end to an adjustable disk-frame, by which series of adjusting devices the shares or cutting devices may be elevated or depressed in a horizontal position, substantially as shown and described.

**4.** In an earth-turning machine, a series of disks attached to an adjustable frame, and a series of shares or cutting devices attached to a separate adjustable frame, in combination with devices for adjusting said frames at different degrees of elevation separately or together, or relatively to each other, substantially as and for the purpose shown and described.

**5.** In an earth-turning machine, the principal frame, C, secondary frame, D, and the third frame, G, in combination with the slotted bearings or guides I and the guides I', all constructed and operating substantially as set forth.

**216,592. JOHN AUSTIN,** Chicago, Ill.  
Plows. June 19, 1879. Filed Jan. 15, 1878.

**Claim. 1.** The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, in combination with one or more axles arranged at an angle to the line of draft, and journaled in a vertically-adjustable beam or frame mounted on draft-wheels, substantially as and for the purposes specified.

**2.** The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, in combination with and rigidly applied to a long axle, E', set diagonally to the line of draft, and having double bearings in a vertically-adjustable frame or beam mounted on draft-wheels, substantially as and for the purposes specified.

**3.** The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, and set diagonally to the line of draft, in combination with the mold-boards H' H', having convex faces arranged in, or nearly in, contact with the concave faces of the said disks or blades, the said disks and mold-boards being applied to a vertically-adjustable frame carried on draft-wheels, substantially as and for the purposes specified.

**4.** The combination, in a rotary plow mounted on draft-wheels, of the frame M, pivoted or hinged at its forward end to the forward part of the carriage and carrying the rotary plowing-disk A' A', one or more, mounted rigidly

on the long axles E' E', set diagonally to the line of draft and journaled in double bearings in the said frame, and the lifting devices connected to the frame M, substantially as and for the purposes specified.

**218,429. CHARLES J. DANIELS,** Lebanon, N. H. Combination Harrows and Plows. Aug. 12, 1879. Filed June 23, 1879.

**Claim. 1.** The rings E, connected by bar G, in combination with the semi-circular rings E, cylinder I, having pinions N, and wheels C, having cogged flanges D, substantially as set forth.

**2.** The platform A, supported on wheels C, in combination with rings F, semi-circular rings E, and toothed cylinder I, substantially as set forth.

**3:** The platform A, provided with bar Q, having pins *a*, combined with ratchet R, lever S, bar G, rings F, having projections H, and semi-circular rings E, having slots *e*, substantially as set forth.

**4.** In a rotary cultivator, the cylinder I, provided with teeth having the cutting blades O and the wedge-shaped portions P, constructed and arranged as shown and described, and for the purposes set forth.

**219,115. CHARLES E. SACKETT,** Matilda Furnace, Pa. Cultivating Machines. Sep. 2, 1879. Filed Mar. 17, 1879.

**Claim. 1.** In a tilling implement combining two or more revolving cutters and a rotary sifting grate or harrow, the interposition between them of a fixed spade composed of plowing points projecting between said cutters and uniting back of them to form a common spade surface, so inclined that the earth divided by the cutters shall be raised, passed rearward and dropped into the furrow so made, or upon pulverizing or sifting devices, substantially as described and shown.

**2.** In a tilling implement combining a fixed spade and a rotary sifting-grate, the combination therewith of two side plates, 12 13, inclosing the said spade and sifting-grate, and extending above and below the plane of their surfaces or centers a sufficient height and depth to confine the upcoming earth upon them, and to keep open the furrow-space below them for the redeposit of the earth after preparation by the sifting-grate, substantially as described and shown.

**3.** In a tilling or planting implement, the combination therewith of a rotary sifting-grate provided with revolving toothed bars having a forced rotation, and for the purpose of harrowing or preparing the earth raised by the tilling devices in one continuous operation, whether for the purpose of planting in the same operation or not, substantially as shown and described.

**4.** In a tilling implement combining a revolving cutter, a fixed spade, and a rotary sifting-grate, the combination therewith of an automatic planting attachment of convenient de-

vice, whereby the earth may be planted at the same time as tilled, and in one and the same continuous operation, substantially as described and shown.

5. In a tilling implement, the seat 56 and draft-bars 46 47, in combination with the T rocking lever 8 9, ratchet-posts 35 36, frame 6 7, with its cultivating attachments, lever 43, and axle, arranged as described, to cause the driver's weight to assist in forcing the implement into the earth, or to raise and sustain it above the ground, substantially as shown and described.

6. In a tilling implement, the combination therewith of an adjustable triangular lifting and carrying arrangement composed of the T rocking levers 8 9, supported on the axle 48, the cultivating attachment bars 6 7, and ratchet-posts 35 36, whereby the carrying wheels and axle serving as a fulcrum, the power of the team, acting through the T rocking levers at either end, alternately serves to raise or sustain the implement from the earth at will substantially as shown and described.

**219,116. CHARLES E. SACKETT,**  
Matilda Furnace, Pa. Cultivators. Sep. 2,  
1879. Filed Sep. 27, 1878.

Claim. 1. In a tilling implement, combining two or more revolving cutters, 51 revolving with a central roller or axis, 52, the subdivision of that roller into, or the surrounding of that axis by a number of smaller rollers, 2, rotating on independent axes 3, and having sharpened cutting edges 4, that serve to cut up, crush, or disintegrate the weeds, stalks, or other field growth that may pass between said revolving cutters, substantially as described and shown.

2. In a tilling implement, combining a revolving spade, composed of one or more rotating blades, 53, the combination therewith of a series of parallel bars, 5 their supporting wheels 6 and 7, eccentric track, and side plates, 8 and 9, for projecting and withdrawing the spade-cleaners and forcibly ejecting the earth at each revolution, substantially as described and shown.

3. In a tilling implement having a revolving or fixed spade, the combination therewith of a sifting-grate of unequal spaces, the revolving toothed bars 12, with gear-train 13 and 14, the side frames, 11 and 15, the latter provided with an inclosed gear-box, the chain 21, and chain-wheels 20 and 31, substantially as shown and described.

4. In a tilling implement combining a revolving cutter, a revolving spade, and a sifting-grate, the combination therewith of an automatic seed-drill, of a convenient device for planting the earth at the same time as tilling it, and in one continuous operation, substantially as described and shown.

**220,176. CHARLES E. SACKETT,**  
Matilda Furnace, Pa. Combined Plows,  
Harrows, and Drills. Sep. 30, 1879. Filed  
May 14, 1879.

Claim. 1. In a tilling apparatus, the combination, with a plow carried on a frame, of a wheel supporting said frame and adapted to move on the bottom of the furrow last made, and to receive and pulverize the earth from the furrows in process of making, as set forth.

2. In a tilling apparatus, a revolving pulverizer, closed or partially closed on the furrow side, adapted to receive the earth from the land side, and provided with internal pulverizing apparatus adapted to pulverize the earth and to let it drop in the furrow behind the pulverizing-wheel, as set forth.

3. In combination with the revolving pulverizer having bars and teeth, as set forth, the shield 8, fixed to the shaft and operating in connection with the plow and the revolving wheel, as and for the purposes set forth.

4. In combination with a tilling apparatus, consisting of a plow and a revolving pulverizer, receiving the earth from the plow, moving in the furrow last made, and leaving the pulverized earth therein, a seeding device, the parts operating together, as set forth.

**220,177. CHARLES E. SACKETT,**  
Matilda Furnace, Pa. Combined Plows,  
Harrows, and Seed-Drills. Sep. 30, 1879.  
Filed Aug. 13, 1879.

Claim. 1. The combination of a carriage-frame, of a frame carrying plowing and harrowing devices, and of the levers 23, lifting-bars 26, shackle-bars 25, lifting cranks 27, and the shaft-crank, connecting-rod, and lever, as set forth.

2. In combination with the lifting apparatus and the suspended frame, the springs 24, arranged upon the bolts of the principal lever-bars 23, and operating with the controlling lever, to raise the frame, as set forth.

3. The combination of a carriage-frame and combined plow and harrow-frame with the lifting-springs 24, the principal levers 23, lifting-bars 26, the shackle-bars 25, lifting-cranks 27, crank-shaft 28, angling-crank 29, connecting rod 30, controlling-lever 31, and stop-frame 32, substantially as shown and described.

4. In a vertical wheel-harrow, the combination of transverse removable bars and the perforated rims, whereby the spaces are made adjustable in width, as set forth.

5. A vertical wheel-harrow, 2, in combination with a pulverizing-plate, 15, having hinged finger bars or cleaners 17, and springs 19, whereby obstructions which will not pulverize are placed without injury to the implement, substantially as shown and described.

6. The plow made laterally adjustable, in combination with the vertical wheel-harrow, the mold-board of the plow being adapted to the inner periphery of the harrow, as set forth.

7. A vertical wheel-harrow, 2, in combination with a plow, 4, made fast to a sliding beam, 5, sliding upon rods, at 6 6, and actuated by a screw, 7, and crank-handle 8, or similar device, all in connection with the common frame 11, whereby the amount of earth

turned into the harrow may be regulated, substantially as described and shown.

**8.** The combination of a carriage of substantially the construction described, of a supplemental frame suspended on one side and carrying the plow and pulverizing wheel, which operate in connection with each other, and a seed-dropping device mounted on the opposite side, the apparatus operating to plow, pulverize, and plant at one operation, as set forth.

**221,095. RICHARD B. PEDRICK,**  
Richmond, Ind. Plows. Oct. 28, 1879.  
Filed Mar. 25, 1879.

Claim. **1.** The revolving plow I, of tubular form, for encircling, operating upon, and rearwardly delivering the soil, substantially as described.

**2.** In a machine-plow, the combination of the cutter proper g', having plain or irregular edge for severing the slice of soil, and the revolving tube I for inverting the same.

**3.** In a machine-plow, a tube, I and a cutter g', the latter being provided with a lip, R, projecting into the tube, as and for the purpose set forth.

**4.** In a machine-plow, the lip R, projecting rearwardly from the cutter g', and formed to present an edge, r, obliquely to the carrying part moving away therefrom, for the purposes of facilitating the revolution of the tube, decreasing compression, and increasing breaking effect.

**5.** The tube I and cutter proper, g', the latter having a lip, R, projecting into the former, said lip being provided with a brush, S, radiating from the convex side of its rear edge, r, combined and operating as described.

**6.** The combination of the cutter g', lip R, and tube I, having slots or escape-holes i, for the purpose set forth.

**7.** In a machine plow, the fixed cutter G g' and the revolving tube I, having gear-holes, f', in combination with shaft F and suitable gearing driven from the ground-wheel B, substantially as shown and described.

**8.** The tube I, having gear-holes f' and escape-holes i, guarded by outside plates T, substantially as set forth.

**9.** The combination of the tube I and the cutter g' with lip R and guards T.

**10.** The combination of the revolving tube I, fixed cutter G, collar H, tie-rods J, and rollers K, substantially as shown and described.

**11.** In a machine-plow, the tube-shaft F, collars G and H, and tie-rods J, substantially as described, and for the purpose of supporting the bracing and tube.

**12.** In a machine-plow, the drive-wheel B, gearing b d, cross-shaft D, bevels E, tube-shaft E, and gearing f f', for revolving the tube I, substantially as set forth.

**13.** In a revolving-plow, the ribs or guide X, or their equivalents, to prevent any tendency of the soil to slide sidewise.

**14.** The combination of tubular plow I and frame G H J, or its equivalent, and rollers K,

provided with retaining flanges k, as and for the purpose set forth.

**15.** In a revolving tubular plow, the tooth or breaker W, substantially as described, and for the purpose set forth.

**16.** In a revolving plow, the combination of tube I, rear collar, H, and tooth or breaker W, substantially as shown and described.

**222,603. CHARLES E. SACKETT,**  
Matilda Furnace, Pa. Combined Plows and  
Pulverizing Harrows. Dec. 16, 1879. Filed  
Nov. 4, 1879.

Claim. **1.** In a tilling apparatus, the combination, with a wheel-harrow, of a plow located by its side and adapted to turn the furrow into said harrow, and of a second plow arranged in a line (but on a higher plane) with the first, and forward of the harrow, as and for the purpose set forth.

**2.** In a tilling apparatus, the forward plow, 11, made vertically adjustable, in combination with a revolving pulverizer made vertically adjustable, so that the latter may admit the passage below it of any depth of cut or thickness of field-growth removed by the former, substantially as described and shown.

**3.** In a tilling apparatus, the combination, with an ordinary beam plow, of a horizontal axle crossing the said plow beam and supporting upon the furrow side a revolving wheel-pulverizer adapted to move in the furrow last made and to receive the earth from said plow, and upon the other end an adjustable gage-wheel travelling upon the land, the two wheels when adjusted in combination supporting, steadyng, and equalizing the movement and cut of the plow, substantially as described and shown.

**4.** In a tilling apparatus, the combination, with an ordinary beam-plow, of an axle connected to said plow and made vertically adjustable thereon, said axle carrying on one end a pulverizing-wheel adapted to move in the furrow and receive earth from the plowshare, and upon the other end an adjustable gage-wheel travelling on the land, as set forth.

**5.** In a tilling apparatus, the combination in gangs of a series of ordinary beam plows and revolving wheel-pulverizers adapted to move in their respective furrows and to receive and pulverize the earth from their respective plows, substantially as described and shown.

**224,009. CHARLES R. FOSTER,**  
Chicago, Ill. Rotary Gang-Plows. Feb.  
3, 1880. Filed Aug. 2, 1879.

Claim. **1.** The crank-axle C, having upon one end the disk-plow B, and mounted at the other end diagonally upon the wheeled supporting-frame A, in combination with the movable bearings D, the crank-lever E, hand-lever G, and link-rods connecting the lever and axle, whereby the axle is made capable of adjustment in two directions to either raise and lower the disks or change their angle to the line of draft, substantially as described.

**2.** The crank-axes C, mounted diagonally on the wheel-frame A, in combination with the disk-plows B, mounted on the axle-cranks outside of the supporting-frame, the crank-lever E, hand-lever G, and link-rods connecting the levers and axle, whereby the disks are raised and lowered, substantially as described.

**226,691. BENJAMIN J. WEST,** New Orleans, La. Apr. 20, 1880. Filed July 30, 1879.

Claim. **1.** In a rotary cultivator, the right-angled standards E E', the lower ends of which are turned and fitted with horizontal spindles F F', of the construction described, carrying revolving disks, substantially as described.

**2.** In a rotary cultivator, the combination, with the angled standards E E', horizontal spindles F F', and the revolving disks G G', of the caps or removable washers I, with braces L attached thereto, substantially as described, and for the purpose set forth.

**227,070. G. B. St. JOHN and J. K. UNDERWOOD,** Cedar Rapids, Iowa. Rotary Plows. Apr. 27, 1880. Filed Feb. 16, 1880.

Claim. **1.** In combination with frame D, as described, and rotary disks F, the horizontal under revolving cutting-disk, S, substantially as and for the purposes set forth.

**2.** The frame D, Y-shaped at the rear, having swinging side guide-wheel, J, at the forward end, and carrying on the side the disks F, combined with lever K, ratchet E, and arm C, and wheels A, substantially as described.

**3.** In a plow, the combination of a forward and vertically-cutting disk with a horizontal-cutting share-blade located behind said disk and adapted to cut under and to the bottom of the furrow, substantially as described.

**229,200. THOMAS J. TALLY,** Rockport, Tex., assignor to himself and John J. Welden. Rotary Plows. June 22, 1880. Filed Apr. 22, 1880.

Claim. **1.** A rotary plow constructed substantially as herein shown and described, consisting of the drive wheels A, having cogs O, the axle B, the swinging frame J having guard boards P and guard rods Q, the cylinders L, carrying plows M, and the gear wheels N, whereby the plow cylinders are rotated by the advance of the machine, as set forth.

**2.** In a rotary plow, the combination, with the axle B and the shafts K, carrying the plow cylinders L, of the swinging quadrantal frames J, having guard boards P and guard rods Q, substantially as herein shown and described, whereby the said plow cylinders are suspended from the said axle, as set forth.

**3.** In a rotary plow, the combination, with the inner quadrantal frames, J, carrying the plow cylinders L, of the senders R, attached to said quadrantal plates and rocking with them upon the axle, substantially as herein shown and described.

**233,455. J. K. UNDERWOOD and G. B. St. JOHN,** Cedar Rapids, Iowa. Rotary Plows. Oct. 19, 1880. Filed Feb. 16, 1880.

Claim. **1.** The combination of the plow-frame A with the pivoted caster-standard F, finger i, and recessed guiding and locking arm G, substantially as and for the purposes set forth.

**2.** The combination of frame A and plow-disk C with the axle E, pivoted standard F, and finger i, as described, and wheel D, substantially as and for the purposes set forth.

**3.** In a shifting axle, substantially as described, the collar O, stem S, nut n, and slotted cap L, in combination with the conical chamber or bearing K, substantially as and for the purpose set forth.

**233,809. CHARLES E. SACKETT,** Matilda Furnace, Pa. Combined Plows and Pulverizing Apparatus. Oct. 26, 1880. Filed July 20, 1880.

Claim. **1.** The pulverizing-wheel adapted to operate in connection with a plow to receive the furrow-slice therefrom, said wheel having a cylindrical tread and frusto-conical furrow side, substantially as described.

**2.** The combination, in a pulverizing-wheel, of the hub-casting F, inclined radial bars u, rims v v', and transverse bars w, substantially as described and shown.

**3.** In a combined plowing and pulverizing apparatus in which the furrow-slice is turned into the pulverizer, the combination of a pulverizing-wheel, a straight axle and a landside-wheel of the same size as the pulverizing-wheel, and adjustably attached to the axle, substantially as described.

**4.** The combination of the axle, the arm a, fixed directly to said axle, the plow, and a suitable elevating-arm, substantially as described.

**5.** The combination of the plow, the arm a, fixed directly to said axle, the axle, and the double arm r r, substantially as shown and described.

**6.** The combination with the plow-arm a and axle, of the slotted arms r r, perforated handles, and connecting-bolts, as described.

**7.** The combination, in a combined plow and wheel-pulverizer, of a straight axle and a landside-wheel with the segment-casting B, lever o, wheel-spindle p, and the described wheel pulverizer, of the same diameter as the landside wheel, substantially as described and shown.

**235,372. THOMAS H. McCRAY,** Tyronza, Ark. Rotary Plows. Dec. 14, 1880. Filed July 8, 1880.

Claim. In a rotary plowing machine, the combination of the steering wheel J", intermediate gear and pinion wheels, H' I' J', the double cogged rack bar G' and idler wheel h", to sustain the rack bar, and the stirrup in which the shaft of the plow cylinder is sustained, all

constructed and arranged substantially as and for the purpose described.

**236,641. HENRY H. SPENCER,**  
Mound City, Ill. Spading Machines. Jan.  
11, 1881. Filed May 21, 1880.

Claim. 1. A spading machine supported upon a wheel carriage, and consisting of a series of spades held in guides and arranged radially around an axle and caused to have a rotary reciprocating motion around and from the axle, in combination with a spring mechanism arranged between the axle and spades, whereby the said movement will be retarded as the spades shall enter the ground and accelerated as they are withdrawn from the earth, as shown and described.

2. In a spading machine, the combination of the supporting wheels, the revolving axle, an independently revolving sleeve to fit around the axle, guide disks attached to said sleeve, supporting rotary reciprocating shovels, and the multiple gearing to cause the sleeve and its connections to revolve upon and in the direction with the axle and at an accelerated speed therewith, in the manner and for the purpose substantially as described.

3. In a spading machine, the combination of the supporting wheels B B, the driving axle A, the hollow sleeve H', guide disks I I', carrying rotary reciprocating spades K, provided with cylindrical hubs that envelop the sleeve H' and are connected therewith by a coiled spring, and a set screw in the one working in a segmental slot of the other, to limit their movement one upon the other and exert a yielding spring pressure upon the spades as they enter the ground, substantially as described.

4. The combination, in spading machines, of the supporting wheels B, axle A, sleeve H', multiple gear to connect the axle with the sleeve, guide disks I I', spades K, eccentric L, with grooved periphery L', secured to peripheral rim L' by set-screws L'', and segment plates K', pivoted to studs K'', that slide in slot in the face of the peripheral rim, in the manner and for the purpose substantially as described.

5. In a spading machine mounted upon a wheeled carriage, the guide disks I I', supported upon a sleeve or axle and carrying rotary reciprocating spades, in combination with the eccentric L, adjustably connected to the frame of the machine by a bail, L'', to regulate the thrust of the spades into the ground or to raise them out of contact therewith altogether, substantially as and for the purpose described.

**238,532. JULIUS SCHUCHARD,**  
Fredericksburg, Texas. Rotary Spading Ma-  
chines. Mar. 8, 1881. Filed Dec. 13, 1880.

Claim. 1. In a rotary spading machine, the combination of the supporting and draught frame A, transverse axle C, the rotary spading drum D, mounted at one end of said axle, and the traction wheel H at the opposite end thereof, all as and for the purpose set forth.

2. In a rotary spading machine, the combi-

nation of the supporting and draught frame A, transverse axle C, the rotary spading drum D, mounted at one end of said axle, the traction wheel H at the opposite end thereof, with the spading drum G, hinged frame I, cleaners J, mounted on axle C, and the cleaners K, all constructed and relatively arranged as herein shown and described, for the purpose set forth.

3. In a rotary spading machine, the curved tooth E, having a square chisel point and a triangular cross-section, the concave face being of uniform width, and the thickness of the tooth increasing from the point of the base, as and for the purpose set forth.

**238,970. CHARLES E. SACKETT,**  
Matilda Furnace, Pa. Combined Plows.  
Mar. 15, 1881. Filed Jan. 14, 1881.

Claim. 1. The combination of the pulverizing wheel, the bent axle, and the land wheel with the plow flexibly suspended beneath said bent axle and discharging into said wheel, and with devices for preventing lateral movement of said plow, whereby vertical movement of the plow and proper relation to the pulverizing wheel are maintained, substantially as described.

2. The combination of the bent axle B, the tongue C, the yoke braces  $\alpha$   $\alpha$ , fixed directly to said axle and adapted for connection either to the plow beam or to the tongue, as set forth.

3. The combination of the plow beam, the yoke braces  $\alpha$   $\alpha$ , fixed directly to the axle, the axle B, the pivotal supports 5 5, and the carrying frame composed of the jointed tongue C, the diagonal braces 3 3, the re-enforcing braces 4 4, and terminating preferably in the frame 6 6 to support a seed drill, the whole being bolted firmly together and pivoted to the axle through the supports 5 5, substantially as described and shown.

4. The combination, with the wheels, the bent axle, and the braces  $\alpha$   $\alpha$ , adapted for pivotal connection either to the plow beam or the tongue C, of the described lifting devices, and adapted to raise either the plow or cultivator teeth, as set forth.

5. The combination, of the wheels, the bent axle, the tongue C, the hook  $c$ , the plow beam with pin  $p$ , and lifting levers, substantially as described.

6. The combination of the wheels, the bent axle D, the lever handles  $h$ , the tongue C, and the braces  $\alpha$ , said lever handles  $h$  being pivoted upon the braces  $\alpha$ , as set forth.

7. The combination of the tongue C, the guide posts  $g$ , fixed to its rear extension, the lever handles  $h$ , pivoted upon the braces  $\alpha$ , bent axle B, wheels, and the devices for turning the earth, substantially as described.

8. The tongue C, consisting of a fixed and movable part extended to the rear of the bent axle B and pivoted thereon, in combination with the frame 6 6, adapted to receive a seed box, and with braces  $\alpha$   $\alpha$  and bent axle B, substantially as described.

9. The combination, with the tongue C and braces 3 3, pivoted upon the bent axle B at its

upper part, of the yoke braces *a*, fixed to said axle near the wheels and adapted to be pivoted to the tongue *C* or to the plow beam, and also in combination with the eyebolts *15*, fixed to the rear of said axle and adapted to hold cultivator devices when desired, substantially as described.

**10.** The combination, with the plow and pulverizer wheel to receive the furrow, of the seed tubes *x z*, located directly in rear of the said wheel, whereby the seed are dropped in the midst of the earth as it falls from the wheel, substantially as described.

**239,219. JAMES W. BODLEY,** New Orleans, La. Rotary Cultivators. Mar. 22, 1881. Filed Jan. 5, 1880.

Claim. **1.** In combination, the standard *C*, adjustably held in the slotted beam *B*, and capable of rotary motion, the disks *D*, secured upon an axle formed by bending such standards *C* at right angles, the parallel beam *A*, having the slots *c*, and connecting-braces secured to the axle of the disk and adjustable in such slots *c c*.

**2.** The combination, with the beams *A* and *B*, provided with slots *c* and *b*, of the standards *C C*, constructed as herein shown, rotary plows *D*, and braces *J K L*, adjustably connected with the beams *A* and *B* by means of crank-nuts *e e' e' e'*, substantially as herein shown, and for the purpose set forth.

**244,367. JOHN AUSTIN,** Chicago, Ill. Plows. July 19, 1881. Filed Jan. 3, 1881.

Claim. **1.** The combination, in a rotary plow, of one or more diagonally-arranged rotary plowing-disks, *B B'*, and the landside *C*, the latter consisting of a thin vertical blade in the form of a shoe, constructed, adapted, and arranged, substantially as shown and described, to follow one of the said disks and to enter the soil vertically near the land side of the furrow, for preventing the tendency of lateral movement of the plow, owing to the diagonal arrangement of the plowing-disks, as set forth.

**2.** The combination, with each other and the beam or frame of a rotary wheeled plow, of the pivoted and laterally-adjustable box *H*, the wheel *D*, the hanger or stock *E*, entering the said box and being rotary therein, and carrying the said wheel, the lever *I*, applied rigidly to the said box, and the adjustable segment *J*, substantially as and for the purposes specified.

**3.** The combination, with each other and the beam or frame of a rotary wheeled plow, of the pivoted and laterally-adjustable box *H*, having elongated trunnions *b b*, the bearings *F F*, the adjustable collars *c c*, mounted on the said trunnions, the wheel *D*, the rotary hanger or stock *E*, and a lever and locking device for controlling the inclination of the said box, for the purposes set forth.

**4.** The combination of the frame *A*, having on its rear end the arms *G G*, the boxes *F F*, the laterally-adjustable box *H*, having trun-

nions *b b*, the wheel *D*, the hanger or stock *E*, the lever *I* and its bolt, and the laterally-adjustable cogged segment *J*, substantially as and for the purposes specified.

**245,053. JAMES W. BODLEY,** New Orleans, La. Rotary Cultivators. Aug. 2, 1881. Filed Apr. 19, 1881.

Claim. **1.** In a rotary-disk cultivator, the combination, with the standard *F*, bent to form the axle of the rotary disk, of the sectional support *A*, having the angular bearing for the axle-standard and provided with lugs for attaching draft and brace rods.

**2.** In a rotary-disk cultivator, the combination, of the axle-standard, the lever *K*, adapted to adjust a traction-wheel, and the sectional support *A*, having an angular bearing for the axle-standard and a plain bearing for the pivot *D* of said lever *K*.

**250,739. ISAAC N. KYLE,** Troy, Ohio Gang Plows. Dec. 13, 1881. Filed Feb. 17, 1881.

Claim. **1.** In a gang-plow, the combination with a diagonal series of concavo-convex disks having continuous cutting edges, of a front series of flat cutting disks arranged to operate in the line of draft, but equidistant between the cutting points of the concavo-convex disks, whereby the earth is first cut and then subdivided and turned over, substantially as described.

**2.** In a gang-plow, the combination, with a diagonal series of concavo-convex disks having continuous cutting edges, of a front diagonal series of flat cutting disks arranged to operate in the line of draft, but equidistant between the cutting points of the rear concavo-convex disks, substantially as described.

**251,135. FRANKLIN RICE, A. and M. APPLE,** Van Buren Township, Ohio, said M. and A. Apple, assignors to said Rice. Tobacco Hilling Machines. Dec. 20, 1881. Filed Oct. 10, 1881.

Claim. In a hilling-machine, the combination, with the frame, of the supporting-wheel *D*, provided with cams or projections *v*, the reciprocating bar *E*, the elbow-lever *F*, spring *S*, and revolving hoes or scrapers *B*, substantially as shown and described.

**256,542. EDWARD E. BOSTWICK,** Union City, Mich. Cultivators. Apr. 18, 1882. Filed Oct. 21, 1881.

Claim. In a rotary cultivator, the combination, with the transverse shaft and means, substantially as described, for operating said shaft of the duplex arms *L*, having clutch hubs *N*, and slots *O*, and the shanks *P*, secured within said slots by bolts *a* and break-pins *b*, all constructed and adapted to operate as specified.

**256,801. ISAAC HUFFER,** Taylorville, assignor of two thirds to J. W. Moore, and J. C. McBride, Christian Co. Ill. Soil Pulverizers. Apr. 18, 1882. Filed Aug. 25, 1881.

**Claim.** In a soil-pulverizer of the character described, the combination of the tubular slides *c* on frame *B*, the shaft of drum *E'* bearing in said slides, the levers *h h'*, and the rods *g g*, connecting the levers with slides *c c*, all arranged for purpose of engaging pinions *e* with spur-wheels, or disengaging said wheels, substantially as described.

**257,914. SAMUEL C. BAUCUM,** Waco, Tex. Plows and Scrapers. May 16, 1882. Filed Jan. 16, 1882.

**Claim.** 1. The combination, with the beam *F*, having eye *b*, the bracket *f'*, and disks *H*, of the rod *c*, adjusting collars *j*, rod *G*, support *d d'*, levers *K*, and slotted arms *k'* all constructed and adapted to operate as described.

2. The combination, with the beam *F*, carrying disk *H*, of the rod *c*, collars *j*, rod *G*, support *d d'*, slotted arms *k'*, and independent levers *K'*, substantially as described.

**259,894. OREN E. MILES,** Cedar Rapids, Iowa, assignor to D. H. Richards, same place. Plows. June 20, 1882. Filed Apr. 7, 1882.

**Claim.** 1. The improved method of plowing herein shown and described, the same consisting in cutting a triangular slice from the soil along the furrow to be made by a vertical cut and excavating underneath said slice, causing it to drop, right side up, into the trench or furrow being made, and spreading the excavated earth over the slices of soil deposited in the trenches last made, substantially as shown and set forth.

2. A plow adapted to cut off a slice of earth triangular in cross section from the surface of the soil by a vertical cut and excavating underneath the same, causing the slice of earth to drop into the bottom of the trench or furrow right side up, substantially as set forth.

3. In a plow, the combination, with a rotary cutter or colter cutting in a vertical, or approximately vertical, plane, of an oblique cutter or cutter head adapted to excavate earth in an oblique direction from the surface of the soil to its point of intersection with the cut made by the rotary cutter or colter, substantially as and for the purpose herein shown and set forth.

4. The combination, in a rotary plow, of the master wheel *C*, shaft *F*, pinion *E*, bevel-wheel *G*, frame *I*, hung upon shaft *F*, and having the handle or lever *I'*, shaft *K*, mounted in said frame and provided with the bevel pinion *N*, and rotary cutter head *L*, and the rotary colter or cutting-disk *O*, all constructed and combined to operate substantially in the manner and for the purpose herein shown and specified.

**260,596. ENOS M. MILES,** Lawrence, Kansas. Combined Revolving Plows or Spades and Rollers. July 4, 1882. Filed Sep. 24, 1881.

**Claim.** 1. The combination, with the framework *A*, shaft *B*, disks *D*, spades *E*, and slats

*F*, of the collar *c*, provided with flanges *c'*, springs *c''*, disks *G*, having arms *g'*, and lever *I*, substantially as and for the purposes specified.

2. In a spader, the combination, with the disks *G*, lever *I*, and cover *K*, of the lever *L*, support *k*, chain *l''*, support *l''*, pulley *l''*, and rack *l'''*, substantially as described, whereby the spades may be adjusted to any desired depth of thrust, as set forth.

3. In combination with the cylindrical body of the spader and its shaft *B*, the rollers *V V*, supplementary roller-shafts *X*, screwed on shaft *B*, and having flanges *x* and nuts *x'*, all arranged as shown and described.

4. The combination, with the shaft *B*, disks *G G*, and lever *I*, of the arms *g'*, having slots *g''*, and the dust-boxes *H*, having side openings *h h'*, all as shown and described.

**260,673. JACOB FEIERABEND,** New York, N. Y. Plowing and Tilling Apparatus. July 4, 1882. Filed July 13, 1881.

**Claim.** 1. A rotary plow consisting of a helix of thin metal coiled edgewise around and along a central shaft that is arranged in the line of the advance of the plow when at work, said helix being concave on the forward side and convex on the rear side, and being constructed and operated by means of driving-gear, so that it enters the ground at the hind point, *C*, and turns in the direction whereby the screw advances, with respect to the ground, in the direction of the movement of the screw along the ground, substantially as described.

2. The combination of the slicer *I* with the rotary helical plow *A*, having concave front and convex rear sides, and arranged on a shaft whose axis is in the line of the movement of the plow along the ground, substantially as described.

3. The combination of the clearer *J* with the rotary helical plow *A*, having concave front and convex rear sides, and arranged on a shaft whose axis is in the line of the movement of the plow along the ground substantially as described.

4. The combination, with the rotary plow *A*, of the reciprocating saw-colter *O*, having a horn, *X*, substantially as described.

**260,782. GEORGE PIRRUNG,** Ravenswood, Ill. Rotary Plows. July 11, 1882. Filed Apr. 20, 1882.

**Claim.** 1. In a rotary plow, the combination, with a hand-lever, of a vertically-reciprocating piston located between the points of termination of the two half-axes, and the two rods connected thereto by swivel-joints extending respectively backward and forward to operate the clutches on the said half-axes, substantially as hereinbefore set forth.

2. In a rotary plow, the combination, with the axles, of the loose gear-wheels *F*, clutches *g*, rods *i*, piston *J*, plow-shaft *B*, pivoted levers *C'*, rock-shaft *I*, with arm *H* and link *h'*, and lever *G*, substantially as and for the purpose specified.

3. In a rotary plow, the combination, with lever C', fulcrumed on the carriage-axle, having a rectangular opening at one end and a recess at the other, of the movable head-block D<sup>2</sup>, set-screw d<sup>2</sup>, adjustable bearing C, bolt E', and oblique plow shaft B, substantially as described.

4. A rotary plow consisting of a hand-lever, G, arms H, connecting-rods H', levers C', shaft B, and piston J, rods i, clutches g, gear-wheels F, and pinions e, connected and arranged by the means and in the manner hereinbefore described and set forth.

5. In a rotary plow, the combination of the oblique plow-shaft, having pinions on or near its ends, with two half-axes terminating in a central longitudinal beam having loose gear-wheel meshing with said pinions, the whole arranged to drive said plow-shaft by the mechanism hereinbefore described and set forth.

6. In a rotary plow, a hub, L, having a flange in the face of which are recesses m', formed to receive the shanks or standards of the plows, secured therein by nuts and bolts, as hereinbefore described and set forth.

**262,377. W. E. CROSSBY, Chelmsford and ARTHUR CAREY, Rockford, England. Machines for Digging Lands. Aug. 8, 1882. Filed Mar. 11, 1882.**

Claim. 1. The combination, with the bar or frame and its attached spades, tines, or digging implements, of mechanism for reciprocating said bar or frame upward and downward, stationary guides wherein said bar or frame is guided during its ascent and descent, thereby causing the spades, tines, or implements to enter the ground in straight lines, and means for turning or swinging said spades, tines, or implements upward and outward quickly as said bar or frame approaches the end of its downward movement, substantially as and for the purpose specified.

2. The combination, with the bar or frame and its attached spades, tines, or implements, of mechanism for reciprocating said bar upward and downward, and guides for said bar adjustable to different inclinations, substantially as and for the purpose specified.

3. The combination, with the bar or frame and its attached spades, tines or implements, of the crank-shaft and rods for reciprocating said bar, and guides for said bar or frame, provided at their upper ends with eyes, whereby they are suspended concentrically to said crank-shaft, substantially as specified.

4. The combination, with the bar or frame provided with journals, and its rigidly-attached spades, tines, or implements, of guides for said journals, wherein the bar or frame may turn, and a crank-shaft and connecting-rod connected with said bar or frame for reciprocating it upward and downward and for turning it, substantially as and for the purpose specified.

5. The combination of the spades or tines a, the bar a', provided with journals a<sup>3</sup>, the slotted guides f, provided with caps f<sup>3</sup>, and the crank-

shaft c and connecting-rod b, substantially as specified.

**265,917. ANDREW J. CORCHRAN, Indianapolis, Ind. Soil-Pulverizers. Oct. 1882. Filed June 20, 1882.**

Claim. The combination, in a soil-pulverizer, of the frame, the roller, the curved teeth F, the combined cutters and cleaners G, mounted on the rock-shaft H, said rock-shaft, the lever I, and the ratchet J, all constructed, arranged, and operating substantially as shown and described, and for the purposes specified.

**266,689. EZRA G. GODDARD, East Saginaw, Mich. Adjustable Rotary Sulky Plows. Oct. 31, 1882. Filed June 10, 1882.**

Claim. 1. In a rotary plow, the combination, with the frame A, consisting of the base a, beam b, and beam c, provided with extensions d e, of the shaft C and the separate U-shaped frames D D', swinging upon said shaft C, substantially as specified.

2. In a rotary plow, the combination, with the frame A, consisting of the base a, beam b, and beam c, having the extensions d e, of the shaft C and the swinging frames D D', the shaft being adjustably connected to the frame by bolts and holes, and the swinging frames constructed to slide on the shaft, as specified.

**266,824. JUDSON B. HURD, Sour Lake, Tex. Revolving Plows. Oct. 31, 1882. Filed June 27, 1882.**

Claim. 1. A revolving plow constructed, substantially as herein shown and described, with a series of radial blades attached to a roller or cylinder and a series of radially-movable scraper-blades between the cutting-blades, as set forth.

2. In a revolving plow, the combination, with a cylinder and a series of radial blades attached to the same, of movable scraper-blades between the cutting-blades, and devices for moving the scraper-blades to and from the outer edges of the cutting-blades, substantially as herein shown and described, and for the purpose set forth.

3. In a revolving plow, the combination, with a cylinder and a series of radial blades attached to the same, of scraper-blades between the cutting-blades, and of circular blades at the ends of the cylinder, substantially as herein shown and described, and for the purpose set forth.

4. In a revolving plow, the combination, with a cylinder and radial blades attached to the same, of movable scraper-blades between the same, and of scraper plates resting against the outer edges of the cutting plates and attached to the frame of the plow or the end plates of the roller, substantially as herein shown and described, and for the purposes set forth.

5. In a revolving plow, the combination, with the cylinder B, and the radial blades A, attached to the same, of the scraper-blades D,

E between the blades A, the pivots F, attached to the arms of the blades D E, and the end plates K, each provided with a groove M, in the shape of a semicircle united at the ends by a chord, substantially as herein shown and described, and for the purpose set forth.

**6.** In a revolving plow, the combination, with the cylinder B and the radial blades A, of the scraper blades D E, the pivots F, attached to the ends of the arms of the same, the circular cutters J, provided with radial slots H, and the end plates K, provided with grooves M in the inner surfaces, substantially as herein shown and described, and for the purpose set forth.

**7.** In a revolving plow, the combination, with the cylinder B and the radial blades A, of the scraper-plates D E between the blades A, the springs for pressing the outer edges of the blades D E against the blades A, and devices for moving the blades D E to and from the outer edges of the blades A, substantially as herein shown and described, and for the purpose set forth.

**269,339. LUCIUS STEBBINS,** Hartford, Conn. Cultivating Machines. Dec. 19, 1882. Filed Sep. 21, 1882.

Claim. **1.** In a cultivating-machine, the combination of the rocking frame C, the bar G, the adjustable link H, and the cam J on the axle of the wheels B, substantially as described.

**2.** In a cultivating-machine, the combination of the two rocking frames C and D, with the

wheels B and intermediate mechanism, whereby said frames are operated alternately, substantially as described.

**3.** In a cultivating-machine, the combination of the hinged frame T, the roller S, having blades S', the cutters U, the cord W, and the lever V, substantially as described.

**4.** The pivoted frame O, provided with teeth P and handle R, in combination with the frame A, provided with the hook Q, and adapted to turn upward, substantially as described.

**269,792. COLUMBUS JOHNSTON,**

Clarksville, assignor of one-half to S. F. Johnston, St. Louis, Mo. Rotary Plows and Pulverizers. Dec. 26, 1882. Filed Apr. 21, 1882.

Claim. **1.** The combination of shaft K, wheel U, blades V, bar N, hanger M, having slot m, upright guide sides O O, shaft K, grooved pulleys Q Q, chains P P, lever S, and stud-bar T t, as set forth.

**2.** In a rotary plow, the blades curved backwardly toward the wheel to adapt the body of each blade to enter the ground before the point, as and for the purpose set forth.

**3.** A rotary cutter and scatterer consisting of a wheel provided with radially-curved blades substantially as shown and described, twisted slightly rearwardly at their upper sides and ends, the bodies of the blades adapted to cut and slice the surface, and the ends to follow and throw back and scatter the sliced surface, as set forth.







## SHOVEL.

| <i>Plate Claim</i>  | <i>Plate Claim</i>   | <i>Plate Claim</i>  |   |
|---|--|---|---|
| Adams, J.<br>Agee, G. S.<br>Allen, T. M.<br>Andrews, T. G. and Riviere, A.<br>Ansley, C. C.<br>Archer, J.<br>Arrington, W. J.<br>Bader, J. Sr.<br>Bagnall, W.<br>Banks, J.<br>Banks, R. W.<br>Barber, E.<br>Bass, E.<br>Bassett, J. M.<br>Bassett, J. M.<br>Baughn, S. C.<br>Beard, M. M. and Purcell, G. W.<br>Beard, M. M.<br>Beebe, H. C.<br>Beets, D.<br>Benedict, I. A.<br>Bennett, H. R. and D. E.<br>Best, R. J.<br>Betts, R. L. and A. C.<br>Biggs, R. W.<br>Billups, C.<br>Billups, C.<br>Billups, C.<br>Binder, A.<br>Black, G.<br>Blanchard, W. R.<br>Blanchard, T. A.<br>Blount, J. G. and Haiman, E.<br>Bond, J. P.<br>Boone, P.<br>Borum, S. R. and McClean, W.<br>Bowlds, F. H.<br>Bowling, J. S. and R.<br>Byle, T. W.<br>Bradford, W.<br>Brelsford, M. C.<br>Brinly, T. E. C.<br>Brooks, R. H.<br>Burgess, W. D. and Zeigler, G. W.<br>Burke, J. M.<br>Caldwell, J. R. and Herren, J. W.<br>Call, M.<br>Camp, E. J.<br>Carnes, S.<br>Carson, A.<br>Cato, W. W.<br>Clark, E. B.<br>Clark, J. M.<br>Clark, T. J. and G. M.<br>Cobb, J. M.<br>Conner, L. H.<br>Cooper, G. W.<br>Cooper, G. W.<br>Cooper, I.<br>Cooper, M.<br>" " (R)<br>Cox, A. G. and Johnson, R. A.<br>Crook, C. F. and Hoffman, L. J.<br>Crossley, C. M.<br>Culver, D.<br>Davis, F.<br>Davis, L. H. and Aycock, I.<br>Davis, V. R.<br>De Long, G. A.<br>De Long, G. A. | Dennis, P.<br>905 560<br>880 551<br>877 550<br>868 547<br>871 548<br>866 547<br>804 546<br>878 551<br>840 538<br>881 552<br>892 555<br>852 541<br>890 554<br>893 550<br>875 550<br>888 554<br>905 561<br>898 558<br>908 562<br>879 551<br>900 558<br>907 562<br>855 543<br>859 544<br>873 549<br>874 549<br>876 550<br>882 552<br>887 553<br>888 554<br>889 554<br>880 551<br>830 537<br>809 548<br>887 554<br>879 551<br>899 558<br>892 555<br>839 558<br>831 537<br>836 537<br>860 545<br>868 547<br>903 559<br>894 556<br>840 538<br>872 548<br>889 554<br>850 541<br>867 547<br>864 546<br>837 537<br>837 537<br>842 539<br>905 560<br>856 543<br>902 559<br>860 545<br>842 539<br>895 557<br>816 547<br>845 539<br>862 545<br>842 533<br>848 540<br>881 552<br>892 558<br>884 553<br>883 552<br>884 553<br>846 540<br>847 540<br>876 550<br>907 561<br>870 545<br>873 549<br>863 546<br>856 543<br>837 553<br>836 537<br>871 548<br>894 556<br>904 560<br>904 560<br>835 537<br>906 561 | Lee, E. D. and Z. W.<br>Lee, Z. W. and E. D.<br>Love, W. W.<br>Luce, W. H.<br>Lyons, J. B.<br>McConaughy, T.<br>McCullers, M. C.<br>McCullers, M. C.<br>McDaniel, G. W.<br>McNair, T. F.<br>McNair, T. F.<br>Maloy, D. H.<br>Mann, A. S.<br>Manning, A. L.<br>March, S.<br>Marshall, H.<br>Martin, J. M. Jr.<br>Mell, J. B.<br>Mims, M. and S. J.<br>Mitchell, J. J.<br>Moon, W. S.<br>Moore, E.<br>Moore, A. N.<br>Moore, F. M.<br>Moore, T. M.<br>Mosher, I. and Eddy, W.<br>" " (R)<br>Moss, C. L.<br>Newsom, A.<br>Newsom, A.<br>Newsom, I. V.<br>Noftz, C. F.<br>Nolte, H.<br>O'Bryan, C. and Kreps, H.<br>" " " (R)<br>O'Neill, W.<br>O'Neill, W.<br>Orick, N. C.<br>Paget, W. C.<br>Paget, W. F.<br>Palamountain, I. B.<br>Parish, G. W.<br>Parker, W. F.<br>Pattillo, R. M.<br>Peek, S. T.<br>Peel, L. G.<br>Perry, S.<br>Petjean, F. J.<br>Phillips, O. F.<br>Piland, A. H.<br>Pitts, J. M.<br>Pool, W. R.<br>Pool, W. R.<br>Poppe, S. W.<br>Porter, R. D.<br>Prentiss, M.<br>Preston, J.<br>Prince, W.<br>Price, J. A.<br>Rabb, W. S.<br>Ramage, J. O.<br>Reed, W. G.<br>Reynolds, F. F.<br>" " (R)<br>Rhodes, M. G. and Skaggs,<br>J. M.<br>Rich, J. and M.<br>Richard, W.<br>Richardson, F. E.<br>Richardson, D. C.<br>Richter, C. F.<br>Rikard, A.<br>Riley, H. A.<br>Riley, S.<br>Rivers, A. W. L.<br>Riviere, A.<br>Robertson, T. A.<br>Rodden, A. | 844 539<br>850 541<br>867 547<br>857 543<br>857 543<br>868 548<br>841 538<br>847 540<br>850 541<br>897 547<br>857 547<br>866 557<br>863 546<br>897 558<br>838 538<br>835 537<br>877 559<br>890 555<br>862 545<br>886 553<br>893 555<br>854 542<br>855 542<br>906 561<br>890 555<br>897 555<br>838 537<br>844 539<br>866 547<br>898 558<br>838 537<br>837 537<br>844 539<br>886 553<br>872 549<br>878 551<br>845 539<br>865 549<br>857 5-3<br>880 551<br>880 551<br>864 552<br>902 559<br>897 547<br>884 552<br>872 548<br>874 549<br>861 545<br>877 510<br>838 534<br>833 537<br>885 553<br>805 547<br>841 538<br>893 556<br>858 544<br>858 544<br>848 549<br>892 554<br>885 553<br>883 552<br>884 553<br>846 540<br>840 540<br>881 552<br>892 558<br>884 553<br>883 552<br>884 553<br>846 540<br>847 540<br>876 550<br>907 561<br>870 545<br>873 549<br>863 546<br>856 543<br>837 553<br>836 537<br>871 548<br>894 556<br>904 560<br>904 560<br>835 537<br>906 561 |

## SHOVEL.

| <i>Plate Claim</i>                                    | <i>Plate Claim</i> | <i>Plate Claim</i>                        |
|---|--------------------|---|
| Rodgers, N.   | 852 541            | Snyder, C.                                |
| Roney, G. W.  | 845 540            | Snyder, A.                                |
| Ross, P. A.   | 862 545            | Stanger, M. E.                            |
| Sanford, O. P.  | 382 552            | Staatzman, W. H.                          |
| Saunders, W. R.                                       | 847 540            | Steen, C.                                 |
| Saunders, T.  | 858 544            | Stephens, H.                              |
| Saunders, L. J.                                       | 892 555            | Stewart, U. T.                            |
| Schlessman, M.  | 885 553            | Talley, R. J.                             |
| Schultz, A.   | 886 553            | Terrel, I.                                |
| Sewell, J.  | 883 552            | Thompson, J. T.                           |
| Shalters, M. R., and Ray,<br>S.                       | 862 546            | Towers, W. W.                             |
| Shipps, W. T., Peterson, C.<br>J. and McLurkin, R. L. | 879 551            | Towers, W., Mc G., and<br>Sullivan, A. R. |
| Shiver, C. J.   | 848 540            | Turner, W. W.                             |
| Singer, J.  | 871 548            | Uttley, G.                                |
| Singleton, D. T.                                      | 869 548            | Wainwright, F. A.                         |
| Smith, A.   | 843 539            | Walton, E. W.                             |
| Smith, D. W.  | 853 542            | Ward, T.                                  |
| Snead, C. W.  | 870 548            | Warlick, N.                               |
| Snodgrass, F. B.                                      | 901 559            | Washburn, A. W.                           |
|   |                    | Watson, W.                                |
|   |                    | 870 548                                   |
|   |                    | 871 548                                   |
|   |                    | 861 545                                   |
|   |                    | 860 545                                   |
|   |                    | 857 544                                   |
|   |                    | 859 544                                   |
|   |                    | 865 546                                   |
|   |                    | 866 557                                   |
|   |                    | 856 543                                   |
|   |                    | 849 541                                   |
|   |                    | 875 530                                   |
|   |                    | 842 538                                   |
|   |                    | Willson, J. S.                            |
|   |                    | 848 540                                   |
|   |                    | Wilson, W. H.                             |
|   |                    | 843 539                                   |
|   |                    | Wilson, J. F. and R. I.                   |
|   |                    | 888 554                                   |
|   |                    | 893 556                                   |
|   |                    | Wixson, R.                                |
|   |                    | 855 543                                   |
|   |                    | Wooldridge, S. H.                         |
|   |                    | 893 556                                   |
|   |                    | Workman, R. W.                            |
|   |                    | 751 541                                   |
|   |                    | Wormell, W. E.                            |
|   |                    | 851 541                                   |
|   |                    | Yost, G. W. N.                            |
|   |                    | Zolliekooter, W. T.                       |
|   |                    | 851 541                                   |

## SHOVEL.

**2,399. M. and S. J. MIMS,** Starkville, Miss. Shovel Plows. Dec. 23, 1841.

Claim. 1. The particular manner in which we have arranged and combined the helve, brace, and mold-board, so as to adjust the position of the latter by means of the adjustable brace D and the bolt o, and thus to determine the depth of the furrow in the manner described, whether applied to a single or a double plow, as set forth.

2. The adapting to the same plow any of the various kinds of hoes, shovels, or other instruments analogous in character and occasionally used in the place of mold-boards, such adaptation being effected by means of the adjustable brace and helve herein described.

**2,689. B. LANGDON,** Troy, N. Y.

Plows. June 22, 1842.

Claim. The standard with its wings, as above described, and in combination therewith the angular double share or weed-cutter and the portable mold-boards, and also the upright cutters with the plates to which they belong, all as above described.

**2,818. WM. C. PAGETT,** Green County, Ohio. Shovel Plows. Oct. 17, 1842.

Claim. The application of the guard, and the combination therewith of the mold-board, as the same are herein fully described, together with their operation.

**4,500. MOSES D. WELLS,** Monongalia Co., Va. Shovel Plows. May 9, 1846.

Claim. The constructing the shovel plow with a rudder, D, arranged in the manner described.

**5,130. R. J. GATLING,** Murfreesborough, N. C. Shovel Plows. May 29, 1847.

Claim. 1. Making the cultivator with adjustable sliding wings E, of a rhomboidal form in their cross-sections, arranged and operating in the manner and for the purpose described.

2. Extending the rear or wide portions of the double share A back in the form of two flat curved wings, forming the curved spaces C, and to which the side bars or braces F, are attached, and upon which the adjustable wings or mold-boards E are placed, in the manner and for the purpose set forth.

3. Making the point in the form of a double wedge, with wings or shoulders B<sup>2</sup>, to fit into corresponding mortises in the share, for securing the same, being reversible at pleasure as the point wears, susceptible of four changes.

**7,141. ROBERT J. KING,** Lancaster, Pa. Plows. Mar. 5, 1850.

Claim. The movable expanding wings combined and moved substantially in the manner and for the purpose herein described, by means

of right and left screws on a cranked shaft that can be turned while the plow is in motion.

**8,170. B. GIGER,** Springfield, Ohio.

Plows. June 24, 1851.

Claim. The peculiar form and construction of the standard, with its sockets at the upper extremity and flanges at the lower, and the method of uniting them so as to form a double machine, capable also of being used for cultivation in its separate parts, as set forth.

**8,721. JAMES H. FOREMAN,** Sharon, Ala. Plows. Feb. 10, 1851.

Claim. The use of the fulcrum-pin d and adjusting arrangement of the pin e<sup>2</sup>, in combination with the beam and stock of a plow, for the purpose of regulating the dip of the plow-share, substantially as set forth.

**8,842. W. F. PAGETT,** White Post, Va.

Shovel Plows. Mar. 30, 1852.

Claim. The construction of the handles and the principle or mode of shifting the same, as the same are herein fully described, with their operation. The invention of the common shovel plow is of course disclaimed.

**9,433. F. E. RICHARDSON,** Hickford, Va. Shovel Plows. Nov. 30, 1852.

Claim. Mounting the double pointed share D upon the central shoulder-piece, C, and fastening the same by a link-piece K, as described.

**10,505. J. S. HALL,** Manchester, Pa.

Shovel Plows. Feb. 7, 1854.

Claim. The hinges i, constructed in such a way that the edge of the front part of the mold-board may lap over the edge of the back part or wing of the mold-board to prevent clogging.

**11,456. JOHN S. HALL,** Manchester, Pa. Plows. Aug. 1, 1854.

Claim. 1. Dissimilar sized hangers x x, causing the wings of the mold-board c c<sup>1</sup> to raise in proportion to their expansion, in connection with the curved hinged braces E E<sup>1</sup>, sustaining said wings c c<sup>1</sup> when expanded, and admitting of extreme contraction without destroying the requisite form of the mold-board under all its changes, (a requisite hitherto not attained,) for the purpose of adapting the plow to a variety of work or uses.

2. The effectual securing of an iron beam to an iron standard by means of the inclined segmental slot S, and bolt and nut, or their equivalent, operating in the manner described.

**11,616. WHITMAN PRICE,** Goldsborough, N. C. Shovel Plows. Aug. 29, 1854.

Claim. The particular form of skimmer plate a, in combination with mold-boards b, tree e, and shovel c, substantially as set forth, and shown in Fig. 1.

**12,650. NOAH WARLICK,** La Fayette, Ala. Shovel Plows. Apr. 3, 1855.

Claim. The whale lance-shaped point D, having a notch in its upper side to receive the lower end of the colter, in combination, with said colter and the Y-shaped adjustable double brace C C', as set forth.

**14,013. GEO. W. COOPER,** Ogeechee, Ga. Shovel Plows. Jan. 1, 1856.

Claim. Uniting the handles of the plow to the standard thereof by means of the self adjusting elbow-joint e, so that both the handles and the plow shall be susceptible of the same relative adjustment to the beam as described.

**14,288. JAMES B. MELL,** Riceborough, Ga. Shovel Plows. Feb. 19, 1856.

Claim. The standard A, with braces B, in combination with braces L C and beam D, constructed in the manner and for the purpose set forth.

**14,539. A. W. WASHBURN,** Yazoo City, Miss. Shovel Plows. Mar. 25, 1856.

Claim. The lifting up plates c c' of my improved cotton-hiller or their equivalents when arranged and operating in conjunction with the governing plates d d' and the hillng plows c c', substantially in the manner, and for the purpose herein set forth.

**16,260. JONATHAN ADAMS,** Eatonton, Ga. Shovel Plows. Dec. 23, 1856.

Claim. The peculiar manner of holding slotted mold-board, share, or hoe to the stock A, viz., by means of the curved brace E with its shank and shoulders extending from the beam B and against and through the hoe and stock, as herein set forth.

**17,211. THOMAS C. GARLINGTON,** La Fayette, Ala. Shovel Plows. May 5, 1857.

Claim. The combination of headed slide g, strap i, brace D, and key n, constructed, arranged, and operating as described, for performing the double function of bracing the beam and stock and securing the mold-board to the stock.

**17,212. JACKSON GORHAM,** Bairdstown, Ga. Shovel Plows. May 5, 1857.

Claim. The foot-piece B, having a box, a, at its upper end and the two flanges b b' at its lower end, as shown for the purpose of securing the foot-piece, to the beam and lower end of the brace C to the foot-piece as herein shown and described.

**18,520. THOMAS A. ROBERTSON,** Friendship, Md. Shovel Plows. Oct. 27, 1857.

Claim. The curved scraper, in combination with the plow point and standard, in such manner that the weeds and sods shall be delivered in the rear of the standard, as set forth.

**18,726. JOSEPH BANKS,** Dadeville, Ala. Shovel Plows. Dec. 1, 1857.

Claim. The arrangement of the double-branched colter I, so that its rear branch rests on the point or share and its forward branch supports the under side of said point, in combination with the vertical and forward and rear adjustments of the colter in the beam, substantially in the manner and for the purposes specified.

**19,125. S. R. BORUM and W. Mc CLEAN,** Norfolk, Va. Shovel Plows. Jan. 19, 1858.

Claim. The arrangement of the peculiarity-formed V-shaped standard D with the horn or projection b of the landside C' and its wings B', as herein shown and described.

**19,262. JOSEPH O. RAMAGE,** La Fayette, Ala. Shovel Plows. Feb. 2, 1858.

Claim. Connecting the piece R with the stock by point and cavity, as shown at g, and passing a bolt on the bottom of the same through opening i and the slot of the plow-point, whereby the said piece is made to perform the functions of root-cutter, brace, and securer of the plow-point, substantially as hereinbefore set forth.

**19,412. PAUL DENNIS,** Bemus Heights, N. Y. Shovel Plows. Feb. 23, 1858.

Claim. The bar A and mold-board B E, in combination with the adjustable roller E, the whole being constructed and arranged substantially as and for the purpose set forth.

**1,515. PAUL DENNIS,** Bemus Heights, N. Y. Cultivators. Sep. 23, 1858. Re-issued Aug. 4, 1863.

Claim. 1. The inclined shovel mold board B, formed and mounted substantially as described, and constructed highest at its outer edges, so as to form on each side of the standard A, a recess c; through which recess a portion of the earth may, after rising upon the mold-board, descend into the furrow in the rear of the plow.

2. The combination with the beam A, and mold-board B, of the adjustable wheel F, arranged and operating substantially as and for the purposes specified.

**19,706. T. McCONAUGHEY,** Barnesville, Ala. Plows. Mar. 23, 1858.

Claim. Extending the piece P, to which the point is secured, rearward a distance nearly equal to its height and giving it increasing lower flanges at bottom, said piece being formed with thick bounding edges and a thin plate filling the intermediate space, substantially as and for the purposes set forth.

**19,886. JOSHUA C. WILLIAMSON,** Washington, Ga. Shovel Plows. Apr. 6, 1858.

Claim. The combination of the plow-iron E, brace F, and cutter or share G, when formed and united together and to the beam in the manner and for the purpose set forth.

**20,269. JOHN M. HALL,** Warrenton, Ga. Plows. May 18, 1858.

Claim. The construction, arrangement, and combination of the body of the implement and its movable parts, as herein described, whereby it is readily adapted to properly receive in turn the several parts employed for performing the various modes of cultivation specified.

**20,790. J. P. HARRIS,** Byhalia, Miss. Shovel Plows. July 6, 1858.

Claim. The hollow foot B, formed and arranged for the reception of the stock A and point C, substantially as specified.

**20,798. DUNCAN C. HUBBARD,** Okolona, Miss. July 6, 1858.

Claim. The combination of share T E S F, stock A B C D, and tooth h z, the whole being constructed and arranged substantially as and for the purpose set forth.

**20,823. ASBERY SMITH,** Ashville, Ala. Shovel Plows. July 6, 1858.

Claim. The arrangement of the upright A, brace C, beam D, and support F, so that a plane will pass through or near the whole of them, and when the wing B is connected to and projects from the said upright A, all as herein set forth.

**22,013. JOHN M. BURKE,** Dansville, N. Y. Shovel Plows. Nov. 9, 1858.

Claim. Depressing and bending inward the rear and lower edge, f, of the mold-board, as described, for the purpose set forth.

**23,369. WILLIAM J. GRIFFIES,** Marietta, Ga. Plow Stocks. Mar. 29, 1859.

Claim. The arrangement of the stock A, forked and slotted foot B B, screw E, shovel F, brace G, wedge C, beam H, and handles I I, the whole being constructed as and for the purposes set forth.

**23,636. W. H. WILSON,** Summerfield, Ohio. Plows. Apr. 12, 1859.

This plow may be regulated by a clevis to run any depth required. The gradual rise of the wings W and shape of the mold-board M lift the soil and mellow it, leaving the ground in a better condition for the growth of corn and vegetables than the ordinary plow.

Claim. The arrangement of the sub-soil shovel W, the common shovel M, colter C, and brace A, the whole being constructed as described for the purpose set forth.

**23,942. ISAAC B. PALAMOUNTAIN,** Tarboro, N. C. Cultivators. May 10, 1859.

On each side of the center bar, and at different lengths from its base are cast boxes or projections e with the dovetail grooves b therein, having a suitable rearward declination. These grooves are exactly on opposite sides of the bar, one pair of which being at the base of standard F, above the share, and the others

occupying positions in rear of and below, the top of the share.

Claim. The arrangement of the beam A, stock B, center bar B, standard F, wings G G and J, share D, and seat H, for joint operation.

**24,399. ELY MOORE,** Slabtown, S. C. Plows. June 14, 1859.

This invention consists in attaching to the common plow beam of wood, an elongated iron brace terminating at one end in a clevis at the end of the beam, and at the other in an iron foot which takes the place of the wooden foot in the common plow.

Claim. The arrangement of the beam A, brace B, clevis C, foot D, stock E, and ring F the whole being constructed as described, for the purposes specified.

**25,437. WILLIAM O'NEILL,** Pine Level, Ala. Plows. Sep. 13, 1859.

This invention consists in attaching to the share of the plow on each side of the stock, by a bolt, a movable section or small mold-board for the purpose of throwing more dirt over the corn or rice, or other seed or grain, when required by the continued growth of the article.

Claim. The arrangement of the adjustable mold-boards M M<sup>1</sup> attached to the share by bolts  $\alpha$ , and constructed as described, with braces z and T, stock S and share S<sup>1</sup>, and point P, substantially as and for the purposes specified.

**25,654. E. D. LEE and Z. W. LEE,** Blakely, Ga. Plows. Oct. 4, 1859.

Claim. The arrangement of the peculiar curved clevis I, beam A, curved rod E, bar D, band G, wedge H, shank f projection h, and share F, as specified, for the purpose set forth.

**25,738. BOLD R. HOOD,** Clinton, N. C. Plows. Oct. 11, 1859.

Claim. The combination of the standard D, with the standard C and land sides E, when the parts are constructed as described, and adapted to receive the various forms of shovel points and mold-boards in use, in the manner described, for the purpose specified.

**26,289. SIMEON T. PEEK,** Penfield, Ga. Plows. Nov. 29, 1859.

Claim. The manner of attaching the share E to the foot bar D, to wit: having the back part of the share notched and fitted in a rebate  $\alpha$  in the foot bar and receiving the shoulder  $b$  formed by the rebate, while the ends f of the share fit underneath the projections c c and the lever F is pressed on the outer side of the share by means of the wedge G, substantially as shown.

**26,349. JACKSON GORHAM,** Bairds-town, Ga. Plows. Dec. 6, 1859.

Claim. The arrangement of the vertical curved standard B, shovel C, curved handle straps D, hooked inclined brace E, and adjustable beam A, as shown and described.

**26,620. GEORGE W. RONEY,** Bailey's Mill, Fla., assignor to himself and Walter F. Lloyd, same place. Plows. Dec. 27, 1859.

Claim. In combination with a beam, standard handles, and shoe rigidly connected together, as shown, the hinging of the colter E to the shoe at  $\alpha$  by its lower end, and the adjusting devices in the beam at its upper end, as stated, and for the purpose set forth, the whole being constructed, and arranged, and operating as represented.

**26,656. FRANCIS DAVIS,** Lima, Ohio Cultivators. Jan. 3, 1860.

Claim. The arrangement of the plow A B C C', shovel D or H, shovel E, guard c, and slotted adjustable conductor G, all in the manner and for the purposes set forth.

**27,099. ROBERT H. BROOKS,** Greenville, Ga. Shovel Plows. Feb. 14, 1860.

Claim. The arrangement of braces D D' C, holes H O V 1, screw bolt T, pieces P P, opening R, beam A, standard B, heel-screw W, notch X, and opening g, constructed as herein described, for the purposes set forth.

**27,109. ELIJAH B. CLARK,** Tallahassee, Fla. Plows. Feb. 14, 1860.

This invention consists in a combination of diagonal cross bars with a longitudinal brace, the whole being bolted together and secured rigidly to a plow beam in such a manner as to form a braced standard for the shovel, admitting of its being readily attached and detached.

Claim. The arrangement of the longitudinal bar D, shovel E, double brace C', double brace C, bolt c, projection d, beam A, and handles B, as and for the purpose set forth and described.

**27,188. WILLIAM H. JOHNSON,** Richmond, Ark., assignor to himself and J. D. Bellah, same place. Plows. Feb. 14, 1860.

Claim. 1. Constructing the beam of the draught block a, and bent strip of iron b, arranged and combined as specified.

2. The ring D, in combination with the beam A, and share standard E, constructed, arranged, and operating substantially as specified.

**299. WILLIAM H. JOHNSON,** (A. I.) to original Letters Patent No. 27,188. Plows.

Claim. The segmental ring D, provided with the screw-threads and nuts for adjusting it in the beam A, in combination with the share piece E, constructed, arranged, and operating substantially as and for the purposes herein specified.

**27,490. WILLIAM WATSON,** Bishopville, S. C. Plows. Mar. 13, 1860.

Claim. The combination of the pivoted clamping hook plate E, fastening wedge f,

standard B, and mold-board D, substantially as and for the purposes set forth.

**27,651. WILLIAM R. SAUNDERS,** Buena Vista, Miss. Plows. Mar. 27, 1860.

Claim. The combination and arrangement of the shares F F, colters G G, and movable mold-boards H H, with beam A, handles B B, yoke E, and oblique brace K, the whole being constructed for operation as described.

**28,000. MATTHEW C. McCULLERS,** Herndon, Ga. Plows. Apr. 24, 1860.

Claim. The arrangement of the handles, beam, and brace, and their several connecting parts, so as to make a plow stock that will admit of the changes, or receive the plows or mold-boards, as stated, and in the manner set forth.

**28,227. JOHN S. WILSON,** Waynesboro, Ga. Plows. May 8, 1860.

This plow is made without any welding or upsetting of the metal, and the invention consists in the manner in which the plow is made, and the plow, the standards and their several connections, are united.

Claim. In combination with the plow the beam and the false colter, the standard made and connected therewith, substantially as described.

**28,372. JOHN S. HUGGINS,** Timmonsville, S. C. Plows. May 22, 1860.

Claim. 1. The adjustable helve  $\alpha$ , in combination with the slotted beam A, and the removable shares, the whole constructed and operating as specified, for the purpose set forth.

2. The removable sword g, in combination with the adjustable helve  $\alpha$  and removable shares, the whole arranged and operating as specified, for the purpose set forth.

**28,408. M. G. RHODES and J. M. SKAGGS,** Talladega, Ala. Plows. May 22, 1860.

This invention consists in a peculiar construction of the plow stock, making the same entirely of iron rods, fastened together by means of screws in such a manner that both the beam and the handles can be adjusted, and that a light and strong stock is produced.

Claim. The combination of the standard A, rods  $a$   $b$   $c$   $a'$   $b'$   $c'$  and  $d$   $d'$   $f$ , substantially as described, for the purpose of producing a new and improved plow stock.

**28,416. C. J. SHIVER,** Camden, S. C. Plows. May 22, 1860.

Claim. The arrangement of the double curved frame C, horizontal bar e, bars d d', eyes f f', beam A, and share D, as and for the purposes shown and described.

**28,605. C. F. RICHTER,** Columbia, S. C. Plows. June 5, 1860.

Claim. The construction and arrangement of the two pieces E G, the mold-board or share H, and their several connections, for the pur-

pose of uniting them together and allowing the mold-board to be adjusted to the pieces E G, substantially as set forth and explained.

**28,919. JOHN T. THOMPSON,** Jackson, Tenn. Plows. June 26, 1860.

Claim. The frame c, with its plow-point j, and wings or mold-boards D, when the whole is constructed, arranged, and united, as set forth and described.

**28,929. JOHN M. WILLIAMS,** Greenville, Ga. Cultivators June 26, 1860.

Claim. The arrangement of the beam A, the two collateral beams B B, the graduated bars a a, the handles M M, the supports F F, and the bar D, when said bar is secured to the main beam and rests upon the collateral beams, and when the several beams are provided with vertical and horizontal mortises for receiving the bars and shanks, as is herein fully set forth, and for the purpose specified.

**28,930. R. S. WILLIAMS,** Bairdstown, Ga. Plows. June 26, 1860.

Claim. 1. The casting of the foot D with a socket E and pockets d, substantially as shown, to receive the beam A and the lower ends of the handles C C, substantially as described.

2. In connection with the sockets E and pockets d d, the base or cross piece B and taper beam A, the former being attached to the beam and handles, as described.

**29,981. WILLIAM GRIFFIN,** Bennettsville, S. C. Plows. July 3, 1860.

Claim. In connection with the mold-board and landside, in one piece, and united to the standards E by a strap and key, the arrangement of the two braces J K, as herein described and represented for holding the several parts to the beam, as set forth.

**29,184. MATTHEW C. McCULLERS,** Herndon, Ga. Shovel Plows. July 17, 1860.

Claim. Securing the beam, handles, and mold-board together by means of the braces C D, straps d, and pins or bolts 2 3, the whole being constructed, arranged, and united substantially in the manner herein set forth and explained.

**29,389. Z. W. LEE, and E. D. LEE,** Blakely, Ga. Cultivators. July 31, 1860.

This invention consists of combining a plow beam and three angle irons, with a cutter, plow share, and plow brace.

Claim. The combination of a plow beam b, and three angle irons e e<sup>1</sup>, e e<sup>1</sup>, e e<sup>1</sup>, with a cutter c, plow share d, plow brace i, clamps g, and wedges h, when constructed and arranged in the manner and for the purposes set forth.

**29,564. JOHN P. BOND,** Greenwood, S. C. Plows. Aug. 14, 1860.

The object of this invention is to construct the ordinary single shovel plow in such a manner, that it will not need the usual diagonal

brace, which greatly obstructs the forward movement of the plow through the ground on account of its gathering weeds, grass, &c., and it will be firmly and rigidly braced and secured against backward pressure.

Claim. The arrangement of the curved brace G, beam A, with its clevises C C, stock E, cross bar D, and stilts B B, as and for the purpose shown and described.

**29,841. W. E. WORMELL,** Germantown, Tenn. Plows. Aug. 28, 1860.

The object of this invention is to effect a more thorough pulverizing, or working of the soil, than hitherto; and also to obtain a self-sharpening instrument, and one of great durability.

Claim. The arrangement of the tri-lateral surface a\*, inclined shares C, mold boards A, and standard B, as and for the purpose shown and described.

**29,934. G. W. N. YOST,** Yellow Springs, Ohio. Cultivators. Sep. 4, 1860.

This invention consists in the manner of arranging the sockets with the beam and standards, and the combination of the various parts.

Claim. The arrangement of the sockets b, with beam A, and standards a; the whole being constructed as and for the purpose described.

**30,188. WILLIAM T. ZOLLICKOOFER,** Shelbyville, Tenn., assignor to himself and William Brown, same place. Plows. Sep. 25, 1860.

Claim. The arrangement of the curved bar C, foot D, and beam A, with the serrated bar E, slotted clevis F, pawls e e, and hooks d<sup>1</sup> d<sup>1</sup>, all in the manner and for the purposes described.

**30,762. A. W. LELAND RIVERS,** Midway, S. C. Plows. Nov. 27, 1860.

Claim. The combination of the bolt d, slotted metal plate e, wedge f, and eye h; the whole being arranged as described, for the purposes specified.

**30,763. NOAH ROGERS,** Thomas County, Ga. Cotton Cultivators. Nov. 27, 1860.

In using this machine for cultivating corn or cotton when small, there is attached to the shovel the scraper O, which, by its curved shape, will catch the ground and prevent it from falling over the young plants, and thus prevent their being covered up.

Claim. The arrangement of the handles C, standard B, with slot f, ring h, link i, pin i, standard D, adjustable braces g and F, mold-board a, wings K and L, and movable pieces J and J; the whole operating as set forth.

**30,793. EVERETT BASS,** Pachitta, Ga. Plows. Dec. 4, 1860.

Claim. The arrangement of the forked and slotted adjustable bar D, beam A, band E, and hinged serrated adjusting rod d, with

the guide bar G, all as shown and described for the purposes set forth.

**30,810. N. A. H. GODDIN,** Wilson, N. C. Cotton Cultivators. Dec. 4, 1860.

Claim. The combination of the curved triangular plate E, or plate F, with the main casting D, pieces I J, and wings G H, substantially as and for the purposes set forth.

**30,849. SMITHWICK WHITLEY,** Tallahassee, Fla. Plows. Dec. 4, 1860.

Claim. The arrangement of the circular pivoted adjustable share foot D with the beam A, pivoted adjustable bar F, and standard C, as and for the purposes shown and described.

**31,419. GABRIEL UTLEY,** Chapel Hill, N. C. Shovel Plows. Feb. 12, 1861.

Claim. The arrangement of the mold board H, cutters h, lower share, G, and cutters f with the landside E, standard D, adjustable upright F, and beam A, in the manner and for the purpose herein shown and described.

**31,549. DANIEL H. MALOY,** Temperance, O. Plows. Feb. 26, 1861.

Claim. The combination of an adjustable gauge, with adjustable handles arranged as described, so that, in adjusting the gauge, an adjustment is at the same time effected in the handles.

**31,749. D. W. SMITH,** Dooley County, Ga. Plows. Mar. 10, 1861.

Claim. The adjustable standard and brace B C, connected together, and arranged in relation with and attached to the beam A, as shown, in connection with the landside E, block H, and adjustable arm F, all arranged for joint operation, substantially as and for the purposes set forth.

**32,052. GEORGE W. COOPER,** Palmyra, Ga. Plows. Apr. 16, 1861.

The plow-beam consists of a flat steel bar, on each side of which are secured curved bars. The standard consists of two bars, pivoted at their lower ends to a curved bar, provided at its rear part with a series of holes and secured to the rear end of the beam by a bolt, by means of which the bar can be adjusted, and the share be set to plow more or less deep.

Claim. The arrangement of the curved adjustable bar E and the swinging standard D D, with the curved bars B B and beam A, all as shown and described, for the purpose set forth.

**32,276. IRA COOPER,** Saybrook, Ohio. Cultivators. May 14, 1861.

Claim. The special arrangement of the adjustable mold-board F, in combination with the mold-boards A A, space A', colter L, and braces P, O, M, N, when arranged in the manner and for the purpose set forth.

**33,096. CHARLES O'BRYAN, and HENRY KREPS,** Minerva, Ohio. Shovel Plows. Aug. 20, 1861.

Claim. The combination of the beam A,

provided with the yoke B, the handles C C, with shares D attached, the braces E E, arranged as and for the purpose set forth.

**3,077. CHARLES O'BRYAN, and HENRY KREPS,** assignors to Nixon & Co., Alliance, Ohio. Plows. Patent 33,096. Aug. 20, 1861. Reissued Aug. 11, 1868.

Claim. 1. The combination of the beam A, provided with the yoke B and handles C C, with shares D attached, and the braces E E, arranged as and for the purpose set forth.

2. Making the handles C and standards in one piece, and so pivoting or connecting the same to the yoke or bow B of the beam as to be rendered adjustable, substantially as and for the purposes set forth.

3. The combination of the beam A and bow of one entire piece, and so arranged that one of the arms of said bow is longer than the other, and so attached to the handles or standards as to admit one of the shovels to be in advance of the other, substantially as and for the purpose described.

**38,056. ISRAEL MOSHER and WALDEN EDDY,** Mosherville and Union Village, Saratoga and Washington counties, N. Y. Shovel Plows. Mar. 31, 1863.

Claim. 1. The combination of the right-angle triangle d, or its equivalent, with the beam standard a', having thereto attached the mold-board b b, substantially as herein described and set forth.

2. The curved extension pieces i i, in combination with the wings of the mold-board b b, substantially as and for the purposes herein described and set forth.

3. The employment and combination of the shoe c with the right-angle triangle d, substantially as and for the purposes herein described and set forth.

**3,545. ISRAEL MOSHER,** Mosherville, and **WALDEN EDDY,** Union Village, N. Y. Shovel Plows. Patent 38,056. Shovel Plows. Mar. 31, 1863. Reissued July 6, 1869, and omitted in the list of claims of that date; again reissued July 13, 1869.

Claim. 1. The employment, arrangement, and combination of the right angle triangle d, or its equivalent, with the beam-standard a', or its equivalent, having thereto attached the mold-board b b, in the manner and for the purposes substantially as herein described and set forth.

2. The curved extension and additional pieces, or wings i i, arranged upon and combined with the mold-board b b, substantially in the manner and for the purposes herein described and set forth.

3. The employment and combination of the removable shoe c, with the right-angle triangle d, or any equivalent therefor, in the manner and for the purposes substantially as herein described and set forth.

4. The arrangement and combination of the handles f f with the plow-beam or standard a,

in the manner and by the means substantially as herein described and set forth.

5. The combination of the plowshare or point *c*, mold-board *b b*, and extension and additional curved pieces or wings *i i*, arranged and operating in the manner substantially as herein described and set forth.

6. A mold-board for shovel-plows, constructed with the ribs or raised flanches *s s*, upon the under side of the same, in such manner as to receive and hold the standard *a'*, in the manner substantially as herein described and set forth.

7. The arrangement of each of the aforesaid described curved extension and additional pieces or wings *i i*, upon the outward projections of the mold-board *b b*, and securing or fastening of the same thereto and thereupon, by the respective bolts *n* and nuts *n'*, in the manner and for the purposes substantially as herein described and set forth.

**41,056. M. C. BRELSFORD**, Girard, Ill. Plow-Beam Handles. Jan. 5, 1864.

Claim. A plow stock, having the beam *A* and the handles *B* made out of one piece of wood, in manner and for the purpose substantially as set forth.

**42,813. RODNEY L. and ALBERT C. BETTS**, Brunswick, N. Y. Plows. May 17, 1864.

Claim. 1. The arrangement of a branched draw beam *B B i*, in combination with a double mold-board *A A*, recessed or made low in the middle portion of its top edge, between the beam branches *B B*, and having a double share *t*, and spreading wings *w w*, extended laterally beyond the said beam branches, substantially as herein described.

2. The arrangement of a branched draw beam *B B i*, in combination with a double mold-board *A A*, provided with a double share *t*, and lateral wings *w w*, and having the upper part *D* of its low or depressed middle portion removable, substantially as herein described.

3. The arrangement of a branched draw beam *B B i*, having runners *S S*, formed on the lower ends of its branches *B B*, in combination with a double inclined mold-board *A A*, having a double share *t*, and oblique spreading wings *w w*, extended laterally beyond the said beam branches, substantially as herein described.

**45,664. S. H. WOOLDBRIDGE**, Venice, Ill. Shovel Plows. Dec. 27, 1864.

Claim. 1. The construction of the forward standard *E* with a supporting lip or shoulder *b* formed on its forward edge, substantially as and for the purposes described.

2. The combination of the standard *E*, having a lip *b* formed on it, shovel *D*, having a bar *D z* formed on it, and a rear standard *F*, with a plow beam *A*, all arranged substantially as described.

**45,995. JOHN HANES**, Polkville, Ky. Plows. Jan. 24, 1865.

Claim. Forming the plow stock, that is, the curved front bar *b*, ground bar *a*, and brace *c*, in one piece, in combination with the manner herein described and shown of adjusting the same to the beam *B*, and handles *R*, through the intermediary of the brace *P*, and cross bar *W*, substantially as set forth.

**54,623. TIMOTHY TERREL**, Spring Hills, Ohio. Shovel Plows. May 8, 1866.

Claim. The curved rear part of the beam *A*, in combination with the brace *G\** and standard *F*, the latter being of double bevel form to receive the share, and all arranged substantially as and for the purpose herein set forth.

**55,312. MARTIN KENNEDY**, Boston, Mass. Plows. June 5, 1866.

Claim. 1. The handle *C*, having the wedge-shaped opening *p* at its lower extremity, in combination with the pin *o*, sole *A*, standard *B'* and bolt *e*, for attaching the handle to the plow, substantially as described.

2. The hooked beam *D*, in combination with the standards *B' B'*, and bolts *a* and *h*, for attaching the beam to the plow, substantially as described.

3. The hinged mold-boards *M M*, constructed with their surfaces turned in at the bottom as described, and hinged to front standard *B*, in combination with the hinged plates or pieces *m m* and piece *d*, for adjusting the mold-boards to any angle, the whole being constructed and operated in the manner and for the purpose set forth.

**55,630. PAUL DENNIS**, Schaylerville, N. Y. Shovel Plows. June 19, 1866.

Claim. 1. Sharpening or providing the wings *D D* with double cutting edges, as and for the purpose described.

2. The wings *D D*, constructed in such a manner as to be capable of being reversed in position, so as to throw the earth outward to a greater or less distance, and also to be capable of being expanded or contracted, as occasion may require, as and for the purpose set forth.

**56,327. SAMUEL PERRY**, Troy, N. Y., assignor to Charles H. Fort, West Troy, N. Y. Furrowing Plows. July 10, 1866.

Claim. The adjustable standard *C*, having the flat share *K* attached to its lower end, in combination with the mold-boards *D D* attached to said standards by links or joints, and provided with arms *E E*, which pass through the beam and are secured by a set screw *F*, the whole being constructed and operated in the manner and for the purpose set forth.

**58,112. WILLIAM H. LUCE**, Hampton, Ill. Shovel Plows. Sep. 18, 1866.

Each fork of the beam supports a wing of the double mold-board and has a handle attached.

Claim. The general construction and form of the beams *A*, and handles *C C*, in combination with a double concave mold-board *B*, substantially as described.

**58,500. CLINTON STEEN**, Athens, Ohio. Plows. Oct. 2, 1866.

The shovel is adjustable up or down by means of a slot in the knee and separate holes for the entrance of a stud under the shovel. The handles are bolted in sockets on the side of the sheath.

Claim. The construction of the plow knee and the mode of attaching the handles as set forth in the above specification.

**60,715. BARNARD GOODRICH**, Brentwood, N. H. Root Extractors. Jan. 1, 1867.

The share is forked and attached beneath the beam by straps which embrace projecting lugs on its front and rear.

Claim. The bush or root extractor, made substantially as described, viz., of the duplex-pronged share, the beam and handles arranged and for use as specified.

**60,938. FREEMAN F. REYNOLDS**, Burke County, Ga. Plows. Jan. 1, 1867.

The landside is adjustable on the standard. A brace bar from the standard foot to the beam heel is adjustable at either end.

Claim. The adjustment of guide bar J to helve G by bolts P P, the advantage and object of which will be seen in above description, and as incidental to and necessary to the proper running of this stock; also, the adjustment of brace H to helve G by shoulder S and bolt K, and to beam A B by perpendicular bolt N, by virtue of which the plows are more easily adjusted to the stock, and less liability of choking, and strength added thereto, the several parts being in combination, as specified.

**3,708. FREEMAN F. REYNOLDS**, Bethany, for himself, and Joseph H. Hines, Davisborough, Ga., assignee of Freeman F. Reynolds. Plows. 60,938. Patented Jan. 1, 1867. Reissued Nov. 2, 1869.

Claim. 1. Attaching the landside or guide-bar to the side of the standard, by means of one or more bolts *a a*, substantially as and for the purposes specified.

2. In connection with the standard E and beam A, the brace F, arranged as described, and connected to the share by bolts *w w*, and to the beam by a single bolt, *m*, substantially as and for the purpose set forth.

3. The combination of the parts E H I F, when bolted together and fastened to the beam, substantially in the manner described and shown, and for the purposes indicated.

**62,228. TURNER SAUNDERS**, Memphis, Tenn. Cotton Scrapers. Feb. 19, 1867.

The landside bar is extended backward farther than usual, and a scraper is attached to its rear end.

Claim. The combination of the scraper and plow, the parts being constructed and arranged to operate in the manner substantially as and for the purpose herein set forth.

**63,276. SETH MARCH**, Norfolk, Va. Plows. Mar. 26, 1867.

The mold-board is cast separately from the standard and the heel from the landside, and being attached by bolts can be replaced separately. The weeder is bolted to a bar attached to the frame.

Claim. The frame, the mold-board, the heel D, and the weeder, substantially as described.

**63,711. JACOB M. EBY**, Warren, Ill. Double Shovel Plows. Apr. 9, 1867.

The standards have side bends to place them in the proper transverse position in respect to the beam and each other. The fore end of the beam is formed into a hook for the single-tree.

Claim. 1. An improved iron double-shovel plow, formed by the combination of the beam A, handles B, standards or supports E, and braces D and G with each other, when said parts are formed and arranged substantially as herein shown and described.

2. Making the uprights or standards E, substantially in the shape herein shown and described and for the purpose set forth.

**64,592. H. STEPHENS**, Mount Vernon, Ohio. Double Shovel Plows. May 7, 1867.

Claim. The combination of the shovel stocks B B with the horizontal brace C and the beam A, when the same are constructed in the form and manner for the purpose specified.

**64,747. ANDREW CARSON**, Memphis, Tenn. Plows. May 14, 1867.

Claim. 1. The herein described construction of the shovel A, with the steel laid on the front side, and its turned up edges B in combination with its center C.

2. The diagonal band D, constructed as described and shown.

3. The colter C with its notches.

4. The braces E and F, in their relation to the beam H and standard I, all arranged as and for the purposes specified.

**65,050. R. W. BIGGS**, Jacksonville, Fla. Plows. May 28, 1867.

Claim. The combination and arrangement of the slotted stock C, point or share E, and semi-circular stationary adjusting plate D, with each other and with a suitable plow beam A, substantially in the manner and for the purpose herein set forth.

**65,725. JOHN M. CLARK**, Somerville, Ohio. Corn Plows. June 11, 1867.

Claim. 1. The adjustable cross-braces B B connected with the rear end of the beam D in combination with the standards A A, constructed, arranged, and operating conjointly in the manner and for the purpose described.

2. The combination of the ratchet and latch represented in Fig. 5, with the adjustable link *j* and draw bars *i i*, arranged in the manner and for the purpose described.

3. The guard *e* and detent *m* in combination with the tongue *k*, bars *a'* and wooden pin *n*, arranged and operating substantially as and for the purpose described.

4. The construction of the plow of a single sheet of metal in the manner represented in Fig. 3, for the purpose described.

**66,144. DANIEL GILBERT,** Carbon-dale, Ill. Shovel Plows. June 25, 1867.

Claim. 1. Forming the shovel or plow plate *F* with a groove or notch in the under side of its upper part to fit upon the bar *E*, substantially as herein shown and described, and for the purpose set forth.

2. The combination and arrangement of the bar *E*, with the upright *C*, and horizontal or ground bar *D*, substantially as herein shown and described and for the purpose set forth.

**68,393. WM. H. STARTZMAN,** Big Lick, Va. Cultivator Plows. Sep. 3, 1867.

Claim. The arrangement with the beam *A*, and shank *B*, of the stirrup *C*, set screw *E* brace *F*, bolt *H'* and the teeth *G*, made reversible with the same or different shaped ends, as and for the purpose set forth.

**68,982. W. R. HARMON,** Union, Port Ohio. Shovel Plows. Sep. 17, 1867.

Claim. 1. The combination of the shoe *E*, and shovel *F*, when the same are so arranged that the shoe *E* presents its entire face to the ground and projects sufficiently far beyond the point of the shovel, not only to protect and guard the same, but also to free the shovel from all labor and strain in opening the furrow, substantially as shown.

2. The combination of the rods *C C*, guide plate *D*, and bolt *c* for regulating the depth of cut of shoe, substantially as described.

3. The arrangement of the rods *C C*, guide plate *D*, and bolt *C*, so that the same can be applied to a single or double plow, substantially as described.

4. The combination of the curved beam *A*, shoe *E*, and shovel *F*, when the same are connected and arranged substantially as described.

5. The combination of the beam *A*, shoe *E*, shovel *F*, rods *C C*, and guide plate *D*, when the same are arranged and operated substantially as described, and for the purpose set forth.

6. The self-adjusting clevis *G*, secured to the rods *C C*, substantially as described, and for the purpose set forth.

**69,083. J. D. EVANS,** Pleasant Hill, Ga. Plows. Sep. 24, 1867.

Claim. The foot *A* and regulator *B*, as pivoted with the bolts at *C* and clamped on both sides of the beam *D*, at *E* and *E'* when arranged and combined as herein described and for the purposes set forth.

**69,137. M. E. STANGER,** Wheeling Ill. Shovel Plows. Sep. 24, 1867.

Claim. A shovel plow having wings *C C*

jointed to it and arranged by means of a series of holes 1 2 3 4, &c., for turning a wide or narrow furrow, substantially as set forth.

**69,478. MASON PRENTISS,** Cambridge, N. Y. Plows. Oct. 1, 1867.

Claim. The adjustable shoe *D*, applied to the curved rear part of the plow beam *A*, substantially in the manner as and for the purpose set forth.

**70,120. D. C. RICHARDSON,** Weldon, N. C. Cotton and Corn Plows. Oct. 22, 1867.

Claim. 1. The plate *D*, cast with the standard, in combination with the adjustable tooth, substantially as described.

2. The plate *D* cast with the standard in combination with the adjustable wings *W W*, substantially as described for the purposes set forth.

3. The shoe *S*, having in rear of the mold-plate a slot *a*, in which wings *R R* of different sizes and form can be secured, when the same is in combination with wings *W W*, the whole constructed and combined substantially as set forth.

4. The devices embraced in the foregoing claims, when the same are arranged in the manner described and for the purpose set forth.

**72,085. P. ATKINSON ROSS,** Harveys, Pa. Shovel Plows. Dec. 10, 1867.

Claim. 1. The combination of the notched rack *E* and removable pin *F*, with the pivoted or rocking cross bar *C* and slotted standard *B*, substantially as herein shown and described and for the purpose set forth.

2. Connecting the forward ends of the handles *D* to the beam *A* by means of the hook or eye bolts *G* and pivoted bar or plate *H*, when used in connection with the pivoted or rocking cross bar *C* and pin *F*, substantially as herein shown and described and for the purpose set forth.

**72,880. A. N. MOORE,** North Cohocton, N. Y. Plows. Dec. 31, 1867.

Claim. 1. The employment of the scrapers *b* and wings *d*, either separately or together, in combination with a plow, substantially as and for the purpose shown and described.

2. The slotted wing *d*, substantially as shown and described, in combination with a plow, for the purposes set forth.

3. The curved corners *a* of a plow, substantially as shown and described, in combination with the wings *d* for accomplishing the more perfect lateral delivery of the soil, all as set forth.

**73,606. W. T. HOWELL,** Alfred, N. Y. Plows. Jan. 21, 1868.

Claim. The attaching of the share *E* to its standard *D* by means of the band *F*, fitted on the cylindrical part *b* of the stand, the pin *cx* on which the band rests, and the brace rod *Fx*, fitting in the recess or depression *e* in the top

of the share, all arranged substantially as shown and described.

**75,988. M. R. SHALTERS and SAMUEL RAY,** Alliance, Ohio. Double-Shovel Plows. Mar. 24, 1868.

Claim. 1. The T-shaped box D, for forming the main frame of a double-shovel plow, substantially as herein set forth.

2. In combination with the box D, the braces C C and handles A A, substantially as and for the purpose specified.

3. The arrangement of the braces F F, C C, and the rod H and tube G, with the handles, and beam for contracting and expanding the frame, substantially as herein set forth.

**79,486. HAMOND MARSHALL,** Atlanta, Ga., assignor to himself and T. W. Chandler, Fulton County, Ga. Plows. June 30, 1868.

Claim. 1. The shank A, constructed as described, with a sharp cutting edge, d d, at the top, curved at the bottom, and provided with slotted projections B B, substantially as and for the purposes herein set forth.

2. The slotted and flanged projections B B on the shank A, in combination with lugs i i and grooves h h on the wings, for the purpose of fastening the same together, substantially as and for the purposes herein set forth.

3. The pin b, on the point C, in combination with the hole c, on the shank A, for the purpose of fastening the same together, substantially as and for the purposes herein set forth.

**79,547. WILLIAM D. RURGESS and GEORGE W. ZEIGLER,** Maumee, Ohio. Plows. July 7, 1868.

Claim. 1. The standard C, constructed with a draught eye c, parallel flanges c', lugs g g, and a point C', adapted for receiving and having secured to it the shovel plate J, and laterally projecting hillling wings G G, substantially as described.

2. The clevis E, constructed with an eye e, upon its front end, and also with a flanged slotted segmental portion i, upon its rear end, substantially as described.

3. The stand K, constructed with a slotted foot-piece, and a segmental elevation, the latter having recessed flanges formed upon it, substantially as described.

4. Securing the handle-support K to the beam A by means of the screw or bolt o, which is used for securing the standard to said beam, substantially as described.

**79,706. THEOPHILUS A. WAIN-WRIGHT,** Wilson, N. C., assignor to himself and Albert Farmer, same place. Cotton Plows. July 7, 1868.

Claim. The construction of the frame A B C, it being cast from one pattern complete, and the manner of securing thereto all of the necessary parts, as above described, by a single bolt or key each, substantially as and for the purposes herein set forth.

**82,959. GEORGE W. KEELER,** New Haven, Ohio. Plows. Oct. 13, 1868.

Claim. 1. The wings F, when hinged to the plate D and standard B, so as to allow of their being contracted or expanded, in the manner as and for the purpose specified.

2. The plate I, as arranged in combination with the plate D and wings F, for the purpose set forth.

**83,154. JACOB HAESSEL,** St. Louis, Mo. Plows. Oct. 20, 1868.

Two adjustable removable harrows are hinged to the shovel so as to allow their rear ends to be opened outwardly.

Claim. The arrangement of the harrows D with the plow A B, in the manner shown and described.

**83,481. WILLIAM B. EVANS,** Bracken County, Ky. Shovel Plows. Oct. 27, 1868.

Claim. The circular conformation of the rear portion of the beam, the front or inner part of which is formed of steel, and reduced to a sharp cutting edge, and bent downward, at its lower end, for the reception of the plowshare.

**83,992. CHARLES F. NOFTZ,** Toledo, Ohio. Potato and Corn Plows. Nov. 10, 1868.

Claim. 1. The combination of the screw K, nut k, and jointed levers J J, for adjusting the position of the wings I I, substantially as and for the purpose herein shown and described.

2. A plow, consisting of the combination of the beam A, handle D, standard F, arrow-head share H, adjustable wings I I, adjustable colter B, and adjustable draft chain C, which works in the up-and-down adjustable notched plate L, all made, arranged, and operating substantially as and for the purpose herein shown and described.

**86,896. JOHANNES BADER, Sr.,** Perrysburg, Ohio. Plows. Feb. 16, 1869.

Claim. 1. The adjustable mold-boards E E', colter B, and share H, combined and arranged to operate in the manner and for the purpose set forth.

2. The lever D and screw G, as arranged, in combination with the colter B and mold-boards E and E', for the purpose specified.

**87,362. LAWSON G. PEEL,** Preston, Ga. Plow Stocks. Mar. 2, 1869.

Claim. 1. Securing the plow-blade J by means of the forked foot E, shoulder-stop F, and rod G, all substantially as shown and described.

2. In combination with the plow-beam A, the forked foot E, rod G, band H, and wedge I, all constructed and operating substantially as shown and described.

**88,344. U. T. STEWART,** Fayette County, Tenn. Shovel Plows. Mar. 30, 1869.

Claim. The combination of four cutters c c c c, attached to the center of the plow, so as to

cut the turf, or roots in front of the plow, constructed as described and shown.

**89,242. WILLIAM S. RABB,** Winnsborough, S. C. Plows. Apr. 20, 1869.

Claim. The movable feet B C, to which the mold-boards or points are attached, arranged and operating substantially as and for the purposes herein specified.

**90,232. T. E. C. BRINLY,** Louisville, Ky. Plows. May 18, 1869.

Claim. 1. The frame C, constructed substantially as and for the purpose set forth.

2. The combination of the shovel, the frame C, constructed with a notched surface at  $c'$ , and the notched plate E, and bolts F, substantially as set forth.

3. The adjustable cutter G, when attached to the beam by an adjustable plate, H, and arranged in front of the share, to operate substantially as and for the purpose set forth.

**91,157. WILLIAM O'NEILL,** Pine Level, Ala. Plows. June 8, 1869. Ante-dated May 28, 1869.

Claim. The additional improvement to my patent of Sep. 13, 1859, viz, the mode of adjusting the land-side J by the wedge K, as herein described, and for the purpose set forth.

**91,164. SANFORD RILEY,** North-cutt's Store, Ky. Shovel Plows. June 8, 1869.

Claim. The combined arrangement of the reversible shovel, having diverse ends F F', and a working-face, concave in its length from point to point, and convex in its width from side to side, with a plurality of bolts E E, for securing it to its standard, B, as and for the purpose described.

**91,631. DANIEL H. HILL,** Union Springs, Ala. Plows. June 22, 1869.

Claim. The curved slotted bar D, constructed and arranged in combination with the beam A, upright B, and standard E, substantially as herein shown and described, and for the purpose set forth.

**92,143. WILLIAM J. ARRINGTON,** Jefferson County, Ga. Plows. July 6, 1869.

Claim. 1. The flange A of the land side substantially as shown and herein specified.

2. The combination of flange A, standard S, and brace C, (with its attachment to handles,) the whole constructed substantially as and for the purposes hereinbefore described.

**94,489. LEWIS GUTHRIE,** Waterloo, Ind. Corn Plows. Sep. 7, 1869.

Claim. The curved supports C C, provided with slots G G, in combination with the handles B B, the beam A, the sheath D, and the brace J, when the said sheath D is so constructed as to carry and operate plows or moles of different forms of construction, substantially in the manner and for the purposes herein set forth.

**94,634. HENRY NOLTE,** Lincoln, Ill. Plows. Sep. 7, 1869.

Claim. The arrangement, with reference to the beam A and mold-boards C, of the pivoted rods F, and screw-rod E, provided with the crank G, all combined and operating as and for the purpose set forth.

**96,018. W. W. LOVE,** Athens, Ohio. Shovel Plows. Oct. 19, 1869.

Claim. The adjustable pivoted knees C C', combined with the double extended draught-beam A A' of a double-shovel plow or cultivator, constructed substantially as herein set forth.

**96,614. WILLIAM R. POOL,** Havana, Ala. Plows. Nov. 9, 1869.

Claim. 1. The combination, with the mold-boards B, either provided with plates C, or projections formed by notches D, and the stocks A of the yoke E, clamping-plate F, and set-screws, when arranged substantially as specified.

2. The combination of the same, when the stock A is provided with the socketed plate for the set-screws and the notched plate H, and the mold-boards are provided with projections I, substantially as specified.

**97,337. C. C. ANSLEY,** Americus, Ga. Plows. Nov. 30, 1869.

Claim. 1. The hinge E F, constructed as described, in combination with the standard C and beam A, substantially as herein shown and described, and for the purpose set forth.

2. The brace-rod G, having a screw-thread cut upon each end, and adjustably secured to the beam A and standard C, by the nuts  $g^1 g^2 g^3 g^4$ , substantially as herein shown and described, and for the purpose set forth.

3. An improved plow, formed by the combination of the beam A, standard C, hinge E F, brace-rod and nuts  $G g^1 g^2 g^3 g^4$ , and handles H I J, with each other, substantially as herein shown and described, and for the purpose set forth.

**97,388. JAMES R. GILBERT,** Wootens, Ga. Plows. Nov. 30, 1869.

Claim. 1. The plow-foot C, constructed as described, of the wooden-beam  $a$  and iron bar  $b$ , secured to the beam A, and regulated by means of the nuts  $c c$ , substantially as and for the purposes herein set forth.

2. In combination with the plow-foot C, constructed as described, the subsoil-share D, substantially as and for the purposes herein set forth.

3. The plow-foot C and the double foot E, so constructed as to be interchangeable with each other, as specified.

**98,159. JOHN W. GOODALL,** Eldred, Pa. Grub-Hooks. Dec. 21, 1869.

Claim. 1. The herein described implement, consisting of a short, strong, iron beam A, provided with the curved prong B, and the handles I rigidly attached, substantially as described.

**2.** In combination with the above, the adjustable side-prongs C and detachable shares D, all constructed and arranged to operate substantially as described.

**100,165. JAMES B. LYONS,** Milton, Conn. Stump-Extractors. Feb. 22, 1870.

Claim. **1.** The arrangement and combination of the prongs C C with the cross-bar d, enlarged central portion c, when secured to the beam A, for operating substantially in the manner and for the purposes specified.

**2.** The arrangement and combination of the beam A, staple H, and doubletree G, operating in the manner and for the purposes herein set forth.

**100,743. MIRANDA FORT,** Talbotton, Ga. Plows. Mar. 15, 1870.

Claim. The stock B provided with the branches b, and combined with the braces b', stock C provided with the branches c, the latter serving as braces to the branches b, and the beam A, all constructed and arranged for the purpose described.

**101,056. D. T. SINGLETON,** Eatonton, Ga. Plows. Mar. 22, 1870.

Claim. The detachable guide-bar H, constructed substantially as herein shown and described, and secured to the standard B by means of the shouldered end of the brace-bar D and the plow, either or both, as and for the purpose set forth.

**102,789. ANDREW F. EPPES,** Stony Creek, Va. Plows. May 10, 1870.

Claim. The stock A, made with an offset, a, and brace a', all in one piece, in combination with the root-cutter b or d, drill-point c, and cutter c', and adjustable hinged share i or k', in the manner and for the purpose described.

**105,529. ELISHA W. WALTON,** San Leandro, Cal. Weed-Cutters. July 19, 1870.

Claim. **1.** The triangular shovel C, constructed as described, and having the two bent ears e, substantially as and for the purpose herein specified.

**2.** The bent rod E, having its opposite ends secured to the movable handles D, in combination with the clasp F, substantially as and for the purpose described.

**3.** The arrangement of the bolt h, for retaining the link g in the rack bar of the clevis, substantially as herein set forth.

**105,892. WILLIAM R. BLANCHARD,** Hertford, N. C. Corn and Cotton Cultivating-Plows. Aug. 2, 1870.

Claim. **1.** A mold-board for ridging-plows, having the concavity G, for turning a furrow, a circular recess, g', and an adjustable circular plate, H, attached thereto, all as and for the purpose described.

**2.** The plates I J, combined with mold-board G, all constructed and relatively arrang-

ed on a ridge-plow, as and for the purpose described.

**107,828. CYRUS SNYDER,** Middle-town, Ill. Plows. Sep. 27, 1870.

Claim. The combination of the shovel C C, slotted rod D, nuts a a, and bolts d d, substantially as and for the purpose specified.

**107,973. CHARLES W. SNEAD,** Millidgeville, Ga. Plows. Oct. 4, 1870.

Claim. The arrangement of the standard e, horizontal arms h, link or shackle c, and wedge k, as shown and described, and for the purpose set forth.

**109,629. THOMAS F. JONES,** Hickford, Va. Cultivator-Plows. Nov. 29, 1870.

Claim. The arrangement of the stock A carrying the arc F, and the plow or point, and wings K, with a hinged and adjustable beam C, all being arranged as and for the purpose herein described and represented.

**109,960. ADAM SNYDER,** Packard, Ohio. Shifting Shovel Plows. Dec. 6, 1870.

Claim. **1.** The arrangement of the ring E, internally-notched ring F, stop-piece or catch G, and shovel D, with standard B, as and for the purpose specified.

**2.** The arrangement of the forked bar H, lever I, ring J, plow D, rings E and F, with the standard B, substantially as herein shown and described, and for the purpose specified.

**110,417. JAMES ARCHER,** Springfield, Wis. Plows. Dec. 27, 1870.

Claim. The construction and arrangement, with the double mold-boards C and plow-standard B, of the bar A, rear standard D, slotted plow-beam E, and key G, substantially as and for the purposes herein set forth.

**111,391. JOSEPH SINGER,** Mendota, Ill. Cultivator-Plows. Jan. 31, 1871. Antedated Jan. 14, 1871.

Claim. The arrangement of the arrow-shaped shovel G, knife E, and hinged mold-boards A and B, connected adjustably by the perforated arms a a, with the brace c and vertical standard, and all constructed as shown and described.

**111,651. SAMPSON B. KING,** Starkville, Ga. Plows. Feb. 7, 1871. Antedated Feb. 3, 1871.

Claim. The arrangement of the notched beam A, bail G, hooked and swiveled bar E, and stirrup D, all constructed to operate as specified.

**112,212. FRANCIS H. BOWLDS,** Fairfield, Ky. Shovel Plows. Feb. 28, 1871.

Claim. The combination of the beam A, standard B, tongued shoe D, and shovel C, the parts being constructed and arranged substantially as shown and described.

**113,341. SAMUEL W. POPE,** Louisville, Ky. Shovel Plows. Apr. 4, 1871.

Claim. The metal plate attached to the end of the standard, and provided with a recess for the reception of the shovel, and with the projection  $\nu'$ , as described.

**114,334. WILLIAM F. PARKER,** Troy, Ala., assignor to himself, John B. Goldthwaite, and William H. Fryer, same place. Plows. May 2, 1871.

Claim. The arrangement of the bar  $c$ , forked stock  $e$  jointed thereto and carrying the share or shovel  $f$ , and the grooved plate  $h$  and bolt  $g$ , with the rigid standard  $b$  and beam  $a$ , as herein shown and described, for the purposes specified.

**115,033. DAVID CULVER,** Kingston, Pa. Cultivator-Plows. May 23, 1871.

Claim. The double mold-board A A, concaved to turn a flat furrow on each side, and horizontally edge-flanged at the bottom to run under outlying tubers of the potato-plant, as described.

**121,381. W. THOMAS JORDAN,** Newnan, Ga. Cultivators. Nov. 28, 1871.

Claim. The plowshare E and slotted foot F having the grades  $n$   $n$ , when forming a cycloidal curve, in combination with the adjustable arms or braces G G and curved rod D with its setting and adjusting mechanism, consisting of the movable semi-collars K L, bolt  $\sigma$ , perforated plate I, hand or clamp screw  $c$ , and clamp-plate  $h$ , constructed to operate substantially as set forth.

**122,162. WILLIAM H. H. DOTY,** Sonora, Ohio. Plows. Dec. 26, 1871.

Claim. The longitudinally-adjustable frame A C D, combined, as described, with a pair of handles, H H, pivoted thereto, and supported by adjustable braces L L, so that the handles and beams can be simultaneously and correspondingly adjusted, as set forth.

**122,885. NICHOLAS Z. GLENN,** Watkinsville, Ga. Plows. Jan. 23, 1872.

Claim. 1. The standard A, consisting of the top plate  $a$  having a slot  $e$  at its rear end the front bar  $b$  provided with flange  $f$ , and the brace  $c$  all constructed and arranged substantially as described.

2. The shank B' having its rear side grooved to fit over the front of the standard A, and having lugs  $k$  at its upper end to lock under the flange  $f$  as herein set forth.

3. The shoulder  $h$  arranged by the side of the bolt hole  $g$  of the standard A, in combination with the wedge  $s$  for tightening the parts as set forth.

4. The shank B' provided with the lateral arms D, having slots therein for receiving and adjusting blades E of various sizes as set forth.

**123,858. CEALY BILLUPS,** Norfolk, Va. Plows. Feb. 20, 1872.

Claim. 1. The two wing mold-boards E E constructed so as to form two different sizes, according as they are arranged, as shown in

Fig. 1 of drawing, or reversed in the manner described.

2. The pivoted guide-colter G having outer edge  $g$  and made vertically adjustable, in rear of the share and mold-boards by means of a pin and apertures  $g^3$ , as and for the purpose set forth.

**126,513. CEALY BILLUPS,** Norfolk, Va.

Cultivators. May 7, 1872.

Claim. 1. A shoe A, provided with vertical slot  $a$  in rear of the mold-board combined with the wings B, made in one or two pieces, so that they may be adjusted in the manner described.

2. The shoe A, having slot  $a$ , or its equivalent and side ratchets,  $a^2 a^2$  in combination with separate wings B B ratcheted on the insides of their shanks, as and for the purpose described.

3. The shoe A, having grooves  $a^4 a^4$  in combination with separate wings, having shanks  $b$   $b$  that fit them, as and for the purpose set forth.

**128,360. WILLIAM WALKER CATO,**

Hicksford, Va. Cultivators. June 25, 1872.

Claim. 1. The lifting bar m, constructed and adapted to be used in combination with the plow, substantially as described, for the purpose set forth.

2. The adjustable notched wings u u' in combination with the removable plates t and the plow standard having sockets e adapted to receive and hold the plates, when constructed in the manner and for the purposes herein set forth.

**128,505. ROBERT D. PORTER,** Zanesville, Ohio, assignor of one-half of his right to Wells W. Legett, Washington, D. C. Plows. July 2, 1872.

Claim. 1. The clevis device, composed of hook, B, ring B' and bolt  $b$ , in combination with the beam A, when provided with the slot d' and obstruction a or its equivalent.

2. The adjustable braces D D when terminating at the top at the rods e e and at the shovel bolts below, provided with the flattened end D' D'' and eyes D'' e'', all substantially as and for the purposes described.

3. In a double shovel plow the combination of the handles C, C, rod e braces f f, and attachment c' c'' when arranged with relation to each other and operating substantially as set forth.

**129,057. ALEXANDER RICKARD,** Schoharie, N. Y. Plows. July 16, 1872.

Claim. The shoe D, having socket in front and apertured lug d' in rear end, combined as described, with the standard B, having foot C, with point in front and slot in rear to allow said shoe to be adjusted to correspond to any change of draft.

**129,076. LOUIS B. WHITE,** Norfolk,

Va. Plows. July 16, 1872.

Claim. 1. The plow share E and mold-board F, pivoted with the backwardly-projecting ears h j, respectively, and united by means of bolts

*i* to standard B, in the manner and for the purpose specified.

2. The sweep-stock H, fitting over the base or shoe f, and adjustably secured thereto by means of bolt p, and having the wings r r, in combination with the detachable and reversible sweeps I, all as and for the purpose specified.

3. The shoe C, provided with horizontal step c', and rear projecting-plate n, the latter being clamped between the handles by means of a bolt, c, and the former serving as a support for the rear end of the plow-beam, which is adjustably secured to it by means of bolt d, all as and for the purposes specified.

**129,196. JOSHUA C. WILLIAMSON,** Washington, Ga. Plows. July 16, 1872.

The stock of the plow has a plowshare-seat, to which reversible shares or shovels can be attached, or which seat can be removed and the frame provided with a subsoil attachment.

Claim. The plowshare-seat H, provided with the tongue y secured between the brace C and plow-iron E, substantially as shown and described.

**133,187. SAMUEL C. BAUGHN,** Calhoun, Ky. Plows. Nov. 19, 1872.

Claim. The plow-plate having its lower end convex and its upper end concave, as described, and arranged for attachment to the oblique standard so as to form a combined shovel and turn-plow, substantially as specified.

**135,070. CEALY BILLUPS,** Norfolk, Va. Cultivators. Jan. 21, 1873.

Claim. 1. A slotted wedge, E, having the flanges e e and e' e' upon its opposite sides, applicable as and for the purpose described.

2. A cultivator-plow sweep having the shank a with hole d and stud d', constructed substantially as and for the purpose described.

3. The standard C, having parallel pairs of holes c c' and intermediate slots c'', as described, to enable the sweeps to be either raised or depressed, and also allow their pitch to be changed.

**137,060. THOMAS J. CLARK and GEORGE M. CLARK,** Higganum, Conn. Plows. Mar. 25, 1873.

Claim. 1. A plow with either single or double mold-board, having a wing or wings, b b', either rigidly fastened thereto or pivoted thereto and pressed upon by a spring, all constructed, arranged, and designed to operate substantially as described, for the purpose set forth.

2. The combination of the plow with single or double mold-board, the wing or wings b b', and the marking roll or rolls attached to the wings, the whole constructed, arranged, and designed for operation, substantially as and for the purpose set forth.

**138,131. JAMES M. COBB,** Jackson, Tenn. Plows. Apr. 22, 1873. Filed Jan. 27, 1873.

A cast-metal plate, having ears to receive the

upper end of the plow-standard, is bolted to the under side of the beam. The standard is inserted by a pivot-joint and further secured by a break-pin in the brace.

Claim. The bearer-plate C, constructed as shown, and provided with ears a a, and the standard or foot-piece D hinged between said ears and slotted, as described, in combination with the stay-rod E with break-pin d and the blade G, all arranged with the beam A, as herein set forth.

**138,656. WELLINGTON JOHNSON and MOSES RANNEY,** Northfield, Ohio. Shovel Plows. May 6, 1873. Filed Feb. 14, 1871.

Claim. The shovel S, removable point P, and colter C, braces b b', and removable and adjustable wings W W, all constructed and arranged for operation as and for the purpose described.

**138,818. JOHN PRESTON,** Plymouth, Ohio. Corn Plows. May 13, 1873. Filed Aug. 23, 1873.

The plow-beam is made of iron, and is so curved that if the lower end of the beam were continued without a change of curve it would cross the forward end at about the position of the clevis. The share is mounted upon a sole in such manner as to leave a space between its upper end and the beam. A rudder or guide plate is attached below the share.

Claim. The beam a, when curved as described, in combination with the sole f g, guide-plate h, and shovel b, all arranged as specified.

**140,716. AUSTIN S. MANN,** St. Louis, Mo. Plows. July 8, 1873. Filed May 26, 1873.

Claim. 1. The combination of the elevated fixed cross-beam B' carried upon the rear standard of the center beam, adjustable side beams, lever-handles, and latches for locking the handles to the cross-beam B', substantially as and for the purpose specified.

2. The combination of the cross-beam B', the handles D D', the latches H, cross-beam C, and the adjustable beams G G, substantially as shown and described.

**141,533. THOMAS G. ANDREWS and ANDREWS RIVIERE,** Barnesville, Ga. Plows. Aug. 5, 1873. Filed May 17, 1873.

Claim. The lever-brace D, pivoted at its rear end to the slotted lower end of the standard C, secured at its forward end detachably to the beam A, and provided with a shoulder or pin for securing the plow-plate F detachably to said standard C, substantially as herein shown and described.

**141,583. JOHN J. MITCHELL,** Livingston, Ala. Shovel Plows. Aug. 5, 1873. Filed Apr. 12, 1873.

Claim. The double-shovel plow-frame, consisting of the standard A, the adjustable angu-

lar braces  $\epsilon$ , the handles K adjustable on said braces by means of the clamp  $w$   $v$ , and the adjustable link connections  $h$   $h'$ , substantially as specified.

**142,864. ROBERT M. PATTILLO,** Cartersville, Ga. Reversible Plow-Points. Sep. 16, 1873. Filed Apr. 19, 1873.

Claim. The plow-iron C, when provided with notch d and bolt-holes d', and reversely curved at each end, as and for the purpose described.

**144,247. WILLIAM BAGNALL,** Otsego, Ohio. Cultivating Plows. Nov. 4, 1873. Filed Aug. 9, 1873.

The standard has an offset to afford seats for two kinds of plows, the lower one for a small plow designed to run under the surface in an almost horizontal position. The upper projection forms a seat for the larger plow, which throws the earth toward the rows of plants.

Claim. The standard G g', constructed as described, and combined with the foot E, as and for the purpose specified.

**144,477. ANDREWS RIVIERE,** Barnesville, Ga. Plows. Nov. 11, 1873. Filed Aug. 30, 1873.

Claim. The combination of the beam A, pivoted standard-bars B, curved brace D, adjustable rod E with crank F, and share C, arranged substantially as and for the purpose described.

**144,707. WILLIAM T. SHIPP,** CHARLES J. PETERSON, and ROBASON L. McLURD, Brevard Station, N. C. Plows. Nov. 18, 1873. Filed Sep. 13, 1873.

Claim. 1. As an improvement in plows, the combination of beam A, standards B, which are adjustable by key h, landside C, shoe F, and detachable share E, substantially as and for the purpose described.

2. In combination with standard-bars B and head C', the top support G, sliding adjustably between the bars and share E, fastened by wedges d<sup>1</sup> d<sup>3</sup>, as described.

3. The top adjustable support G, having wider head with recess e', and slotted arm d<sup>2</sup>, as specified.

**145,901. ALFRED RODEN,** Mumford, Ala. Cultivators Dec. 23, 1873. Filed Nov. 19, 1873.

An improvement on former patent in the use of two beams pivoted to three slotted cross-bars, and held at any distance apart by a diagonal brace.

Claim. The combination of the beams A<sup>1</sup> A<sup>2</sup>, slotted cross-bars B C D, slotted and perforated brace E, and their bolts, all as and for the purpose set forth.

**146,225. ISAAC A. BENEDICT,** West Springfield, Pa. Winged Plows. Jan. 6, 1874. Filed Oct. 4, 1873.

Claim. 1. The brace-rod H and keys I, in

connection with the notched slots e<sup>3</sup> of the arms E, substantially as herein shown and described.

2. The combination of arms E E and wedge-wheels J J, clamped by the same pivot-bolt to the standard C, as described, whereby the wings may be expanded or contracted to suit wide or narrow rows, and turned down flat for shallow culture, or set up for hillng corn or potatoes.

**146,524. COLEMAN GAINES,** Lincoln, Ill. Plows. Jan. 20, 1874. Filed July 11, 1873.

Claim. The mold-board, shares, and point of a plow, formed of one piece of metal, the mold-board curved, as described, in the line of draft, and straight transversely, the point running parallel with the surface of the ground and the shares projecting laterally, all substantially as shown, and for the purpose set forth.

**146,815. ISAAC M. FORD,** Belton, Tex. Plows. Jan. 27, 1874. Filed Dec. 1, 1873.

Claim. An improved plow-plate formed of a single piece of iron or steel, with its point C formed at irregular angles, as shown, and with a rearwardly-inclined landside flange, D, extending from the angular line f d, the latter being concaved upon the arc of a circle, as set forth, and the mold-board E, from its rearward corner e to the point at d, being convexed, as specified, all constructed and arranged substantially as herein shown and described.

**149,088. THOMAS M. ALLEN,** Macon, Ga. Plows. Mar. 31, 1874. Filed Dec. 20, 1873.

Claim. In a plow, the combination and arrangement, as shown and described, of the pivoted standard B, slotted at each end, the slotted handles C, bar D, provided with clamp-nuts, the beam A, having a notched groove in its under side, the clamp or keeper G, wedge H, pivoted brace F, slotted shovel I, and clamping device J K, all connected to operate as specified.

**149,518. FRANCOIS JOSEPH PETIT-JEAN,** Natchitoches, La. Plows. Apr. 7, 1874. Filed Nov. 22, 1873.

Claim. The slotted standards D D', adjustably secured to the beam A, in combination with the link G, connected to the standards by pivots i j, as and for the purposes described.

**152,510. OSCAR F. PHILLIPS,** Lynchburg, Va. Shovel Plows and Cultivator Points. June 30, 1874. Filed Apr. 9, 1873.

By means of a supporting-seat, which projects downward from the main portion of the shovel, and the construction of the joint with spurs or lugs, a firm connection between the two parts is made.

Claim. In a shovel-plow, the detachable share B, having projection d, spurs i i, and bracket g, in combination with the blade A, having recess e, projection f, and bolt o, all constructed and operating substantially as described.

**154,315. ROBERT W. BANKS,** Dadeville, Ala. Plows. Aug. 25, 1874. Filed May 16, 1874.

Claim. The combination of the wheel A, constructed and arranged as described, with the hoop-shaped plow-standard C, adjustable around the periphery of the same substantially as and for the purpose herein specified.

**156,396. H. B. WHITTEMORE,** Maine, N. Y. Plows. Oct. 27, 1874. Filed Sep. 7, 1874.

Claim. 1. The two plow-beams A A, having their front ends adjustably connected in the slotted draft-bar D by means of a bolt h, or its equivalent, as and for the purpose described.

2. The combination of the double beams A A, handles G, and screw-rods K K, constructed as described, and adapted to receive the hillng plow or the pair of covering-plows, as and for the purpose herein described.

**157,006. AUGUST IHRINGER,** Calvert, Tex. Plows. Nov. 17, 1874. Filed July 6, 1874.

Claim. The combination of beam A, pivoted standard B, let thereinto, pivoted yoke or straps D D, superposed ratchet G, and pawl E, having arms e' e', all constructed and applied together as and for the purpose specified.

**157,681. JAS. R. GROVER,** Salladburg, Pa. Shovel Plows. Dec. 15, 1874. Filed Sep. 7, 1874.

Claim. The combination of the shovel A, having a vertical center groove and ribs, the adjustable cutter-blade B, having holes slotted to the rear edge, and the bolts C C, substantially as described, and for the purposes specified.

**160,385. WILLIAM BRADFORD,** Valdosta, Ga. Plows. Mar. 2, 1875. Filed Dec. 7, 1874.

Claim. The brace f, combined with the bent foot-bar a, the heel-bar e, and the beam, with the three points of attachment g m l of these parts arranged above the plowshare, as described, whereby the pivots of the heel-bar e and the land-side b are relieved from the strain upon the foot-bar and its brace.

**165,877. OLIVER P. SANFORD,** Dadeville, Ala., assignor to himself and Jacob Henry, same place. Plows. July 20, 1875. Filed May 28, 1875.

Claim. 1. The combination of the beam A, having its rear end curved downward, the U-shaped adjustable standard B, and the adjustable handles C, with each other, substantially as herein shown and described.

2. The combination of the washer G, provided with a tongue and cross head, g', with the notched U-shaped standard B, the plow-plate E, and its bolt F, substantially as herein shown and described.

**166,333. ANTON BINDER,** Lehigh, Tannery, Pa. Corn-Plows. Aug. 3, 1875. Filed May 17, 1875.

Claim. 1. In a plow, the combination of the pivoted mold-boards E, their adjusting links F, screw I, traveler h, guide-braces i j, and depth-regulating wheel H, constructed and arranged as shown and described.

2. The combination of the guide-braces i j with the adjusting links and mold-boards, substantially as shown and described.

**167,494. MANFRED CALL,** Richmond, Va. Cotton Sweeps. Sep. 7, 1875. Filed Oct. 19, 1874.

Claim. The center piece or sole D, provided with shovel-point A, overlapping nose-piece N, and side flange C, as shown and described, to adapt it to be applied to the skeleton of a turn-plow in connection with the two wings, as specified.

**171,435. JOHN SEWELL,** Bowden, Ga. Plows. Dec. 21, 1875. Filed Sep. 18, 1875.

Claim. The curved beveled bar E, provided with land-side bar F, pins b d, hole e, and projection a, in combination with the slotted plow foot D, having perforated toe, the mold-board G, with holes x y, and the bolt h, with nut i, all substantially as and for the purposes herein set forth.

**173,014. WILLIAM A. JENNINGS,** Nevada, Ky. Plows. Feb. 1, 1876. Filed Nov. 5, 1875.

Claim. The plow-beam A, curved standard B, and the bar C, extended to the rear of the curved standard, and provided with the point D, projecting lip a, and rib b, all formed of one piece of metal, in combination with the plow-share, having the swell d and connected to the standard at its top by a bolt and nut h, as set forth.

**174,185. JOSEPH G. BLOUNT and ELIAS HAIMAN,** Columbus, Ga. Plow-Shoulders. Feb. 29, 1876. Filed Nov. 6, 1875.

Claim. The combination of the slotted standard B B, the plate D, having flanges d' d'', the bolt E, having its head countersunk in plate D, and the nut e' with a plow-plate, C, secured by its own bolt, as and for the purpose specified.

**174,293. ASA H. PILAND,** Margarettsville, N. C. Plows. Feb. 29, 1876. Filed Jan. 7, 1876.

Claim. The combined mold-board and sweep or bat-wing, consisting of the mold-board portion F, provided with the extension c, cast in one and the same piece, substantially as described.

**174,295. WM. R. POOL,** Havana, Ala. Plows. Feb. 29, 1876. Filed Nov. 6, 1875.

Claim. 1. The attachment C, forked and combined with the standard, as and for the purpose described.

2. The blocks g g, arranged one on each side of the standard, as and for the purpose specified.

**176,138. ANDREW E. JESTER,** Jackson, Tenn. Plows. Apr. 18, 1876. Filed Sep. 14, 1875.

Claim. 1. The wings D D, hinged to the plow-standard, the bars I I, and brace J, in combination with the foot B and its shovel-blade, as and for the purpose set forth.

2. The slotted plate *a d*, set-screws *b*, and the plate or loop *c*, in combination with the beam, for holding and adjusting the cutter, as and for the purpose set forth.

**177,520. DAVID H. JARRARD,** Talladega, Ala. Plows. May 16, 1876. Filed Mar. 21, 1876.

Claim. The combination of crooked brace D, made reversible before and behind the standard, with the sod-cutter F, secured detachably, as and for the purpose specified.

**178,815. WILLIAM M. TOWERS,** Rome, Ga. Plow-Feet. June 3, 1876. Filed Apr. 19, 1876.

Claim. 1. In combination with the plow-foot A, having a forked upper portion pivoted to or upon the beam B, and at each end A' of said forked portion provided with a slot, *a*, and a grooved outer face, the bolt D, passing through said slots and said beam, and having the inner face of its head *d* grooved, the washer *d'*, provided upon its inner face with grooves, and the nut D', placed over the threaded end of said bolt, substantially as and for the purpose specified.

2. In combination with the shovel F and with the foot A, provided with the vertical slot *a''* and horizontal grooves *a'''*, the bolt G, passing through said slot and provided with a head *g*, that is grooved to engage with the front of said foot, and is provided with a rabbet, *g'*, which embraces the upper end of said shovel, substantially as and for the purpose shown.

**179,065. M. SCHLESSMAN,** Columbia City, Ind. Shovel Plows. June 20, 1876. Filed Mar. 11, 1876.

Claim. The combination, with the plow-beam A, of the clevis G, secured to its rear end, the standard C, held by said clevis and provided with the arm *b*, hinged in a mortise above the beam, and the notched segmental bar *d*, secured on top of the beam, all constructed substantially as and for the purposes herein set forth.

**180,556. LEMUEL H. DAVIS and IRVIN AYCOCK,** Morgan, Ga. Plow-Stocks. Aug. 1, 1876. Filed May 27, 1876.

Claim. The combination of the curved beam A, branched bar B, and rear bar C with the handle E, all constructed and relatively arranged as herein set forth.

**181,102. JAMES A. PRICE,** Houston, Tex. Plow-Stocks. Aug. 15, 1876. Filed July 11, 1876.

Claim. The combination of the two straps B, the two braces G, the U-strap H, and its

set-screw I with the beam A and the stationary standard C, to receive and hold the detachable standard D, to which the plow is attached, substantially as herein shown and described.

**182,862. ADAM SCHUETZ,** Carondelet, Mo. Plows. Oct. 3, 1876. Filed June 26, 1876.

Claim. The combination of the wings E F, bow G, cross-piece H, and bar I, arranged in a plow-frame, substantially as and for the purpose specified.

**184,657. GEO. W. PARISH,** Savannah, Ga. Plows. Nov. 21, 1876. Filed Aug. 19, 1876.

Claim. As a new article of manufacture, a plow having a plate extending from the mold-board to the land-side, which is provided with a slot having a large and small end adapted to receive the head of a bolt and secure the plow to the stock, substantially as described.

**186,601. THOS. M. MOORE,** Tyler, Tex. Plows. Jan. 23, 1877. Filed June 16, 1876.

Claim. The combination of foot A, having standards B C and shoulders *a*, the curved blade *f*, the shovel F, fitting the curve of standard C, and clasping-blade *f'*, and the securing-bolts *d d'*, as and for the purpose set forth.

**186,993. T. H. C. DOW,** Tampico, Ill. Shovel Plows. Feb. 6, 1877. Filed Aug. 7, 1876.

Claim. The plow-plate A, the right-angled bar B, and the obtuse-angled bar C, constructed and combined with each other, substantially as herein shown and described.

**187,249. G. BLACK,** Dadeville, Ala., assigner to himself and J. T. Moye, same place. Plows. Feb. 13, 1877. Filed Dec. 18, 1876.

Claim. 1. The combination, with beam A and handles H, of the standard C, curved bar F, and braces I, all pivoted and arranged to admit of adjustment, in the manner described.

2. A plow-standard, C, and handles H, both pivoted to beam A, and connected by braces I, that are pivoted to each, as shown and described, to allow the several parts to be folded together, as set forth.

**187,763. T. E. KERSH,** Palestine, Tex. Plows. Feb. 27, 1877. Filed Dec. 29, 1876.

Claim. The combination, substantially as herein set forth, of the blade A, made with a series of bolt-holes in the shank, for the purpose of allowing a side adjustment, the stirrup iron S, with the nuts on its ends, for fastening the blade to the foot-beam of a plow, and the foot-beam F, constructed so that the blade can be moved and secured to it in the adjustable manner described.

**188,508. E. D. FRENCH**, Byhalia, Miss., assignor to himself and J. L. Harris, same place. Plows. Mar. 20, 1877. Filed Aug. 21, 1876.

Claim. 1. The combination, with the plow-beam B, of the parallelogram or diamond shaped frame C, provided on its front bar with the slot c, and of the part E D, composed of shoe or sole and point, and provided with the shoulder d, substantially as shown and described, for the purpose specified.

2. The combination, with the plow-beam B, and parallelogram or diamond-shaped frame C, of the part E D, shoulder d, and plow-blade F, substantially as shown and described, for the purpose specified.

**188,732. A. B. FARQUHAR**, York Pa. Plows. Mar. 27, 1877. Filed Jan. 26, 1877.

Claim. The combination, with a standard, b, and a shovel or share, e, having a straight portion, e<sup>1</sup>, as described, of a clip, f, consisting of a front plate, f<sup>1</sup>, and lugs f<sup>2</sup>, and adapted to hold the share e in position by means of a single bolt, e<sup>2</sup>, substantially as shown and described.

**189,136. J. PRESTON**, Millford, Ky. Plows. Apr. 3, 1877. Filed Feb. 10, 1877.

Claim. The combination of the curved beam H, provided with the plow-plate I and the rigid perforated bar K, with the slotted beam A, the standard B, provided with the square plow E and the roller G, and the handles D, substantially as herein shown and described.

**189,443. D. P. FERGUSON**, Jonesborough, Ga. Plows. Apr. 10, 1877. Filed Jan. 6, 1877.

Claim. The combination, with the pivoted standard A, of the brace E, having an angular form and provided with notches or open slots on the upper side of its horizontal arm, the bolt d, passing through the plow-handle and traversing the slot c in the beam, the weighted key F g, and the slotted pendent ears e, all arranged as shown and described, for the purpose specified.

**189,981. J. F. WILSON and R. I. WILSON**, Calhoun, Ga. Plows. Apr. 24, 1877. Filed Mar. 3, 1877.

Claim. The combination of the adjustable wings C, the slotted sliding bars D, and the bolts G, with the plow standard A, and the plow-plate B, substantially as herein shown and described.

**190,538. M. M. BEARD and G. W. PURCELL**, Black Hawk, Miss. Plows. May 8, 1877. Filed Dec. 13, 1876.

Claim. The frame-piece A, consisting of flat bottom-piece b, forming the land-side, and curved upright c, the latter having slots d<sup>1</sup> and rabbet e, in combination with the plow attachment F, having perforations i and flange f, the latter projecting so as to form the point t, substantially as and for the purpose shown and specified.

**194,407. J. S. BOWLING and R. BOWLING**, Alexandria, Ala. Plow Stocks and Sweeps. Aug. 21, 1877. Filed Feb. 10, 1877.

Claim. 1. The combination of the adjustable steel spring I with the adjustable slotted foot F, and with the bolt H, that secures the plow-plate G to said foot F, substantially as herein shown and described.

2. The combination of the sweep M, the hinged bar N, and the adjusting-bolt P, with the adjustable slotted foot F, and with a bolt, H, that passes through said slotted foot F, substantially as herein shown and described.

**194,891. JOHN R. CALDWELL and JOHN W. HERREN**, Dadeville, Ala. Plows. Sep. 4, 1877. Filed Mar. 6, 1877.

Claim. The combination of the curved beam A, pivoted and adjustable shoe-piece B B' b, pivoted handles C, and braces D, adjustable upon the shoe-piece B, all arranged and operating substantially in the manner and for the purpose herein shown and specified.

**195,811. JAS. C. FERGUSON**, Cross Plains, Ala. Plows. Oct. 2, 1877. Filed Jan. 31, 1877.

Claim. The combination, in a plow, of the beam A, standard B, the adjusting segment and brace C, placed vertically in the rear of the standard, the handles f f, standard D, and brace E, constructed as described and shown, and adapted to secure a landside plow or a shovel plow and subsoiler, as set forth.

**196,184. THOMAS A. BLANCHARD**, Appling, Ga. Plows. Oct. 16, 1877. Filed Aug. 18, 1877.

Claim. 1. The combination, with the handles B bolted to and near the end of beam, of the slotted brace E, extended along the bottom of beam and under the ends of handles, as and for the purpose set forth.

2. A reversible sweep, consisting of wings I, beveled and notched in front and attached to the plate H, as shown and described.

3. The reversible wing I of a sweep, notched at the outer end, as shown and described, to allow the end of wing to pass close to the plants without danger of covering them with dirt.

**196,934. JASON RICH and MOSES RICH**, Hastings, Mich. Plows. Nov. 6, 1877. Filed Sep. 12, 1877.

Claim. 1. The mold-board D, having a forward curve upon the inside, a backward curve upon the outside, and the sharp curve e upon the upper part, substantially as described.

2. In combination with the beam A and standard C, the notched brace E, passing diagonally through the beam and standard, the key f, and the draft-rod F, all constructed substantially as and for the purposes herein set forth.

**197,006. J. M. BASSETT**, Athens Ga. Plows. Nov. 13, 1877. Filed July 23, 1877.

Claim. The combination of beam A, forwardly-curved standard C, and clamp E F, substantially as and for the purpose specified.

**199,736. ASA NEWSOM**, Valdosta, Ga. Plows. Jan. 29, 1878. Filed Dec. 8, 1877.

Claim. An improved shovel plow formed by the combination of the screw G, and its two pairs of nuts g<sup>1</sup> g<sup>2</sup>, and the bent bars H I, with the curved slotted standard A, the beam D, and the handles F, substantially as herein shown and described.

**200,559. WILLIAM S. MOON**, Pleasant Grove, Ga. Plows. Feb. 19, 1878. Filed Dec. 18, 1877.

Claim. The combination, with the plow-foot D, of the reversible wedge-shaped block G, having projections h h and notches x x, the plow E, having projection i, and the bolt d, with nut e, all substantially as and for the purposes herein set forth.

**200,819. THADDEUS W. BOYLE**, Augusta, Ga. Shovel Plows. Mar. 5, 1878. Filed Jan. 23, 1878.

Claim. 1. In combination with a forked plow-standard and a shovel attached to its lower end, the teeth or corrugations c, formed upon the inside faces of said standard, and also similar corrugations formed longitudinally upon the shank of the bolt, to retain the shovel upon the standard, in connection with a washer formed with wings h<sup>1</sup>, and projections h<sup>2</sup>, substantially as and for the purpose described.

2. In combination with a forked standard having interior corrugations and a shovel-bolt with longitudinal corrugations, the washer h, having wings h<sup>1</sup> and projections h<sup>2</sup>, substantially as and for the purpose described.

**201,099. GEORGE A. De LONG**, Weedsport, N. Y. Hilling-Plows. Mar. 12, 1878. Filed Jan. 22, 1878.

Claim. 1. The mold-board a, having ears f f on the inner face for embracing the beam, and a boss or projection, b, forming a socket for securing the lower end of the beam, substantially in the manner and for the purposes specified.

2. The beam constructed as herein specified, and combined with the mold-board by locking into the ears f and socket b, so that they can be firmly united by a single bolt, substantially as herein set forth.

**201,225. EDMUND J. CAMP**, Alpharetta, Ga. Plows. Mar. 12, 1878. Filed Feb. 23, 1878.

Claim. The plow-standard formed of a bar doubled at or near the middle of its length, the rear arm being straight or parallel to a vertical plane, and the front arm having two bends or angles, as shown and described, whereby the standards are adapted to fasten on the same side of the beam, and to be changed in position to adapt the plow for use, for the purpose specified.

**202,090. EDWARD BARBER**, Jonesborough, Ga. Plows. Apr. 9, 1878. Filed Feb. 4, 1878.

Claim. 1. The plow-standard B, made in one piece, bent in the middle so as to encircle the beam, extending parallel below and joined at the ends, substantially as and for the purpose set forth.

2. In combination with the standard B, constructed substantially as described, the beam A, brace C, and clamp E, substantially as and for the purpose set forth.

**202,987. SAMUEL CARNES**, Jonesborough, Ga. Plow-Stocks. Apr. 30, 1878. Filed Mar. 2, 1878.

Claim. The combination, in a plow, with the beam A, of the standard-bar C, passing up and bending over the said beam, and adjustable vertically thereon, and the bar D, bent rearwardly and at right angles to form a brace, as and for the purpose specified.

**203,132. OLIVER S. GANDY**, Newport, N. J. Cultivators. Apr. 30, 1878. Filed Mar. 12, 1878.

Claim. The combination of the beam a, standard b, slide l, connected directly to the standard, a frame for the slide to move in, brace h, guide g, set-screw i, and the two set-screws r and s, for securing the standard into any position into which it may be adjusted, substantially as shown.

**203,948. IRVIN J. SAUNDERS**, Coleman, Station, Ga. Plow-Stocks. May 21, 1878. Filed Mar. 27, 1878.

Claim. 1. The brace-plate D, provided with the cutting-edge d<sup>3</sup> and the three sets of holes d d<sup>1</sup> d<sup>2</sup>, arranged to adapt it for adjustably securing together the beam A and standard B of a plow-stock, substantially as set forth.

2. The handles and standard B C, made in one piece, having the openings c c<sup>1</sup> c<sup>2</sup>, in combination with the brace-plate D, having holes d<sup>3</sup> d<sup>2</sup>, the split beam A, and the clamps E E', as shown and described.

**204,358. THOMAS M. MOORE**, Tyler, assignor to himself and Richard Blair, Smith County, Tex. Plows. May 28, 1878. Filed Apr. 1, 1878.

Claim. 1. The standard B', provided with slots f f, in combination with the land-side F and its fastening-bolts, substantially as and for the purpose specified.

2. The vertically-adjustable land-side F, provided upon its front edge with an elongated recess or slot g, in combination with the standard B' and its sweep or blade E, substantially as and for the purpose described.

3. The standard B', provided with recessed and slotted flange c and recess or slot c, wing D, and sweep or blade E, substantially as shown, and for the purpose described.

4. The standard B', provided with the slots f c and recessed or slotted flange c, in combination with the land-side F, sweep E, and plow

D D', substantially as and for the purpose set forth.

5. The standard B', slotted b', with bolt b, beam A, perforated post C, and pin or bolt a, substantially as shown and specified.

**205,164. ROBT. WIXSON,** Sparta, Ga.  
Turning-Plows and Attachments. June 8,  
1878. Filed Jan. 29, 1877.

Claim. 1. The plowshare or blade formed as shown, and having its front cutting-edge curved transversely, substantially as specified.

2. The share or blade, in combination with attachment-plate J G H I, all constructed and arranged to operate as described.

**205,458. REASE W. WORKMAN,** Rock Hill, S. C., assignor of one-half his right to John R. Loudon, same place. Plows. June 25, 1878. Filed Apr. 23, 1878.

Claim. The fixed colter and brace-plate C, having a convex or semi-circular cutting-edge, d, in combination with the bifurcated standard A, adjustable upon the colter-plate, and the handles D, extended downward and bolted to said plate, all as shown and described, and for the purposes specified.

**205,992. JOHN M. BASSETT,** Athens, Ga. Plows. July 16, 1878. Filed Apr. 11, 1878.

Claim. 1. The combination, with a slotted standard and fastening device, of the independent plate adapted to give bearing to the plow or plowshare, said plate being made tapering or wedge-shaped in longitudinal section, substantially as set forth.

2. The combination, with a slotted standard and fastening device, of the plate adapted to give bearing to the plow or plowshare, said plate being made with a stop-piece on its rear side, which fits in the space formed by the slot of the standard, and secures the plate against lateral displacement thereon, substantially as set forth.

3. The combination, with the slotted standard and fastening device, of a plate adapted to give bearing to the plow or plowshare, said plate being made with the right-angular shoulders on its front upper side and the lateral stop-piece on its rear body, substantially as set forth.

4. The combination, with a slotted standard and plate having the two longitudinal grooves in which the respective branches of the standard are seated, of the bolt and nut which clamp said plate to the rear side of the standard, substantially as set forth.

5. The combination, with the slotted standard and fastening device, of the grooved plate clamped to the rear side of the standard, and the independent plate clamped to the front side of the standard, said latter plate being adapted to give bearing to the plow or plowshare, substantially as set forth.

**206,723. JOHN H. GILELLAND,** Peek's Hill, Ala. Plows. Aug. 6, 1878. Filed June 17, 1878.

Claim. The combination of the notched and slotted colter-lever, F and the cam-lever H with the standard B of a plow, for clamping and holding the plow-hoe G, substantially as specified.

**206,766. PERINO BOONE,** Maysville, Ga. Plow - Stocks. Aug. 6, 1878. Filed July 1, 1878.

Claim. In combination with the beam A, the bifurcated standard D, pivoted to or upon said beam, the bar E, secured to said beam A, provided with the threaded ends the ratchet-teeth e, and the nut F, and extending downward and rearward through the standard, and the pawl G, pivoted within the latter and engaging with said ratchet-bar, substantially as and for the purpose specified.

**207,130. JOHN O. FARRELL,** Athens, Ga. Plows. Aug. 20, 1878. Filed May 4, 1878.

Claim. The plow - standards h, provided with the countersinks f and notches d, in combination with the stirrup g, set-screw h, and the plow-beam, substantially as described, and for the purpose set forth.

**207,530. J. K. KIRKSEY,** Pickens County, S. C. Adjustable Plow - Stocks. Aug. 27, 1878. Filed Aug. 3, 1878.

Claim. 1. The combination, with the plow-beam and the curved arms D', of the plow-stock of the shaft d, rod C, nut e, bearing-plate B, and wedge or shoe E, substantially as and for the purpose specified.

2. The combination of the bearing-plate B, having its upper face serrated, and the wedge or shoe E, having its under face serrated and its sides provided with a series of recesses, of the shaft d, brace rod C, nut e, the curved arms D' of the pivoted plow-stock D, and the plow-beam A, all constructed and operating substantially as shown and described.

**207,895. WILLIAM G. REID,** Rock Hill, S. C., assignor to himself and James M. Ivy, same place. Plows. Sep. 10, 1878. Filed July 25, 1878.

Claim. The combination, with a plow-beam and a standard constructed as described, of the brace or stay provided with notches g, the block H, provided with the ribs or tongues h, and a fastening-bolt or nut, substantially as and for the purpose herein shown and set forth.

**208,074. COLUMBUS M. CROSSLEY,** Ruthledge, Ga., assignor to himself, A. S. Croosley, and T. W. Bearden, same place. Plow-Stocks. Sep. 17, 1878. Filed Mar. 13, 1878.

Claim. The combination, in a plow-stock, of the beam A, curved down at the rear and sharpened on the front of the curve, the slotted adjustable standard B, the braces C, bent and embracing the beam, as shown, and the handles D, all constructed and arranged as shown and described.

**208,664.** **VAN R. DAVIS,** Buchanan, assignor of two-thirds his right to A. Westbrooks, J. C. Westbrooks, and W. A. Westbrooks, Rock Mart, Ga. Plow Stocks. Oct. 1, 1878. Filed Aug. 16, 1878.

Claim. In a plow, the shank A, formed from a single piece, and having the oblong opening d, and forked or separated, so as to encompass the extreme rear end of the beam D, and rigidly secured thereto, then continuing above said beam on each side and rigidly secured to the brace E, in combination with the brace F, beam D, and handles K, all constructed and operating substantially as and for the purpose set forth.

**209,043.** **ABRAM HEARTSILL,** Louisville, Tenn. Shovel Plows and Harrow Attachments. Oct. 15, 1878. Filed July 10, 1878.

Claim. 1. The colter E, provided with the top and bottom screw-rods, e e', in combination with the shovel D, beam A, and standard C, the rear end of the beam being hinged to the standard, and adjusted by nuts on the upper screw rod, e, substantially as and for the purposes herein set forth.

2. The vertically-adjustable harrow attachment G, connected to the side of the plow-beam, and operated by the lever H to a suitable angle with respect to the beam, as set forth.

**209,282.** **THOMAS F. McNAIR,** Worthville, Ga. Plows. Oct. 22, 1878. Filed Aug. 15, 1878.

Claim. The combination of the double metallic standard C, pivoted to each side of the plow-beam, the shovel E, the cutter F, having pin i, and the adjustable slotted brace D, the shovel, the cutter, and the brace being connected to the standard by the same bolts, substantially as herein set forth.

**210,176.** **GEORGE W. WIGGINS,** Cuthbert, Ga. Plows. Nov. 19, 1878. Filed Apr. 10, 1878.

Claim. 1. The combination, with the slotted standard E E' and blade or point F, of the slotted washer n, having an obtuse-angled shank, l, provided with cross-piece, m, bearing upon the upper edge of the blade or point F, and headed screw-bolt o, having nut q, substantially as and for the purpose specified.

2. The combination, with the beam A, of the handles C C, supported at their rear ends upon said beam by the pivoted braces B B, and connected at their forward convergent ends to said beam by the keeper or yoke d, secured to the slide or frame D, keyed to the beam by the key or wedge e, substantially as shown and described, and for the purpose set forth.

3. The combination, with the beam A, having a number of apertures, c c', of the bifurcated U-shaped standard E E, having a fixed perforated arm, E', substantially as and for the purpose set forth.

**211,002.** **WOODSON DICKERSON** and **WILLIAM H. STRAIN,** Summerville, Ga., assignors of one-fourth their right to John Taylor, same place. Plows. Dec. 17, 1878. Filed Oct. 19, 1878.

Claim. In a plow, the combination of the perforated bifurcated stock B, having the solid point B' and slotted extensions b c c, secured directly to the handles, with the beam A and the pivoted perforated beam-brace D, substantially as set forth.

**211,433.** **REUBEN J. TALLEY,** Harrisville, Tex. Grub-Plows and Stalk-Cutters. Jan. 14, 1879. Filed Nov. 12, 1878.

The colter serves, with the broad cutter, to prevent the plow from being driven laterally as it encounters grubs or roots.

Claim. In a grub-plow, the saw C, in combination with the cutter B and colter D, substantially as shown and described.

**211,632.** **ANDREW L. MANNING,** Booneville, Miss. Plows. Jan. 28, 1879. Filed May 14, 1878.

Claim. In a cotton-sweep, the combination, with a front detachable share adapted to be vertically adjusted, of side wings, respectively made in single piece and formed with diagonal stems, which latter fit against horizontal bar connecting the standard and rear stock of the plow, said stems being provided with holes in their rear portions and oblong slots forward of the same, whereby a single pivot and bolt adjust the wings in a vertically-inclined plane, substantially as set forth.

**213,225.** **GEORGE W. McDANIEL,** Conyers, Ga. Plows. Mar. 11, 1879. Filed Dec. 5, 1878.

Claim. 1. In a plow, the combination, with a side beam, of the two bars composing the standard, the outer one thereof being formed with a stem, which passes through the plow-beam, and side beam, the same being adapted to secure the rear end of said side beam, together with the upper end of said standard, to the plow-beam, substantially as set forth.

2. In a plow, the combination, with a plow-beam, of the two bars constituting the standard, one of said bars being formed with a horizontal stem, which passes through a corresponding hole in the plow-beam, and is of length adapted, by engagement of a nut on its screw-threaded extremity, to adjust said standard laterally to or from the plow-beam, substantially as set forth.

**218,558.** **ASA NEWSOM,** Valdosta, Ga. Plows. Aug. 12, 1879. Filed May 26, 1879.

Claim. The combination of the curved slotted standard A, the plow-beam C, secured between its upper ends, and provided with an extension having eye c<sup>2</sup> and tooth c<sup>3</sup>, the toothed bar D, and brace-bars E, connecting the standard and handles, as shown and described.

**219,748. JOHN M. MARTIN, Jr.,** Ocala, Fla. Plows. Sep. 16, 1879. Filed June 20, 1879.

Claim. The plowshare A, having a fixed wing, B, a detachable wing, C, with apertured arm H D, and slot E, a flanged stud, F, and hole G, as shown and described, to adapt it to be used as specified.

**221,528. CHARLES T. CROOK and LOGAN J. HOFFMAN,** Fort Mill, S. C. Plows. Nov. 11, 1879. Filed Mar. 26, 1879.

Claim. The bifurcated standard A, having an offset in both arms, to cause the shovel-foot to stand upon one side of the beam, in combination with the curved double brace C, and beam B, as shown and described.

**223,309. HENRY C. BEEBE,** Canton, Ill., assignor of one-third of his right to M. F. Beebe, same place. Shovel-Plow Points. Jan. 6, 1880. Filed Nov. 14, 1879.

Claim. The herein-described shovel-plow point, consisting of the plowshare A, having the beveled front-edge, B, and recesses H, and the plow-point C, having a shank, D, adapted to fit closely to the underside of the plowshare, the shoulder E, provided with a re-entering bevel, F, and the conical projections G, adapted to engage with the recesses H in the plowshare, as and for the purpose specified.

**227,360. SPENCER T. JAMES,** Franklin, Ga. Cultivators. May 11, 1880. Filed Feb. 14, 1880.

Claim. The combination of the plow-beam A, having a slot  $g^2$ , in its rear end, and provided with a plate or slide, D, having a longitudinal slot g, with intersecting slots or notches  $g'$ , and a button  $h h^3$ , with the plow or shovel standard, having a notched upper end, and a plow or shovel, substantially as and for the purposes set forth.

**228,835. NICHOLAS C. ORRICK,** Canton, Miss. Plows. June 15, 1880. Filed July 25, 1879.

Claim. The beam A, toothed plate G, having V-shaped slot O, hinged standard C, and plate J, pivoted to the standard and provided with guide L and brace K, the latter having toothed plate M, engaging the toothed portion of plate G, to which it is adjustably secured by a bolt, N, all combined, arranged, and operating substantially as and for the purpose set forth.

**228,885. GEORGE W. GAMMILL,** La Fayette, Ala., assignor of one-half his right to James W. Altord, and Kinchen B. Alford, same place. Plows. June 15, 1880. Filed Feb. 4, 1880.

Claim. The combination, with the plow-beam A, of the adjustable plow-foot C, provided with notches x, the adjustable braces D D, the block F, hinged between the lower ends of the braces and provided with the flange i,

the shovel G, and bolt h, with nut e, all constructed and arranged substantially as and for the purposes herein set forth.

**229,239. GEO. A. DE LONG,** Phoenix, N. Y. Plows. June 29, 1880. Filed Mar. 29, 1880.

Claim. 1. The mold-board having the tapered shank a, with the threaded stud c and nut n, and provided with the abutments d and lips e, in combination with the beam B, having the extensions B', provided with the socket b, all constructed and combined substantially in the manner described and shown.

2. The point C, having the threaded stud r, with conically-enlarged base r' and nut n', and provided with recess s and lips h h, in combination with the mold-board having the tongue t, provided with the recess m and vertically-elongated hole o, and provided on its edge with lips h h, substantially as described and shown.

**231,633. WILLIAM W. TURNER,** Powellville, Ga. Plows. Aug. 24, 1880. Filed June 29, 1880.

Claim. In a plow, the plow-standard H, bent forward and upward at its foot, and provided with the projection M, in combination with the bent support P, embracing the standard H, as shown, and riveted thereto at R and S, and the plowshare W, perforated at N and Y, and the bolt and nut Z, constructed and operating substantially as and for the purposes set forth.

**231,985. HIRAM R. BENNETT and DANIEL E. BENNETT,** Sterling, Mich. Plows. Sep. 7, 1880. Filed May 14, 1880.

Claim. As an improvement in plows, the beam B, stock A, handles C C, having auxilliary cross-bar D and notched cross-bar E, shovel-point S, having hinged wings F F, hooked connecting-rods G G, and lever H, having spring R, all combined and operating substantially as and for the purpose herein set forth.

**236,743. ROBERT W. WHITE-HURST,** Norfolk, Va. Cultivating-Plows. June 18, 1881. Filed Nov. 29, 1880.

Claim. In a cultivating-plow, the combination, with the standard E, of the sweep-holder I, having the notches p, and adapted to be vertically adjusted on the plow, and the sweep L, having a tooth or point, q, for engagement with the notches, whereby the sweep may be adjusted vertically and forward and back without changing its horizontal plane, substantially as shown and described.

**240,579. JAMES M. DORMON,** Arcadia, La. Plows. Apr. 26, 1881. Filed June 26, 1880.

Claim. The combination of the plow-point section B, formed with the V shaped groove at the base, and the mold-board section A, having its lower edge beveled, said section B adapted to overlap the section A, substantially as shown and described.

**240,766. HENRY A. RIDLEY,** Newport, Ark., assignor to himself and Lazar Hirsch, same place. Shovel-Plow Blades. Apr. 26, 1881. Filed Feb. 2, 1881.

Claim. The combination, with the plate A, adapted to be secured to any plow-standard and pointed at the lower end, the wings E, and the point F, of the rectangular plate D, placed between the wings E E and in the rear of the point F, flush with them all, and overlapping, with a beveled edge, the correspondingly-beveled edge of each of them, as shown and described.

**242,069. FRANCIS B. SNODGRASS,** Harrisville, W. Va. Root-Cutting Plows. May 24, 1881. Filed May 5, 1881.

Claim. In a root-cutting plow, the combination, with the slotted beam A and slotted plates H, of the double-end colter E F and the wedge-keys G, as and for the purpose specified.

**243,217. LAURANCE H. CONNER,** Grand View, Tex. Shovel-Plows. June 21, 1881. Filed May 14, 1881.

Claim. 1. In a shovel-plow, the combination of an adjustable shovel-carrying standard, A', a curved toothed bar, E, a sliding toothed bar, E', a yoke, E<sup>2</sup>, a toothed lever, E<sup>3</sup>, and a beam, B, the parts being arranged for joint operation substantially as set forth, whereby the angularity of the shovel and its standard with reference to the beam can be regulated, for the purpose set forth.

2. The combination of the adjustable standard A', the beam B, the pawl C, the rods D, D', and D<sup>2</sup>, and the extensible wings A<sup>2</sup> and A<sup>3</sup>, the parts being constructed and arranged for operation substantially as set forth, and for the purpose specified.

3. The combination of the standard A', the guide D<sup>3</sup>, the spring D<sup>4</sup>, and the lever C, their arrangement being substantially such as shown and described, and for the purpose set forth.

**244,504. THOMAS WARD,** Harper, N. C. Combined Plows, &c. July 19, 1881. Filed Mar. 2, 1881.

Claim. 1. The curved standard C, provided with a flange, a, and with a slot, b, at its rear side, in combination with the plow-beam A, having mortise H, and with the handle B, adjustable in slot b, whereby the pitch of the plow-standard is made adjustable, as set forth.

2. The curved standard C, provided with slotted ear J, in combination with mortised beam A, adjustable handle B, mold-board F, and detachable share E, the cutting-edge of the share being in a materially higher plane than the sole of the landside-bar, whereby the several parts are adapted to operate as set forth.

3. The landside-bar D, having formed on its side as an integral part thereof an ear, L, provided with a lug, f, substantially as and for the purpose specified.

4. The standard C, provided with the recess M, in combination with landside-bar D, provided with ears L, whereby a mold-board plow

is adapted to be converted into a cotton-sweep, substantially as specified.

5. The landside-bar D, provided with ear L, having lug f, in combination with the reversible sweep G, having serrations g, substantially as and for the purpose specified.

**244,660. JNO. M. PITTS,** Poplar Springs P. O., Ga. Plow-Stocks. July 19, 1881. Filed May 23, 1881.

Claim. The plow-beam A, having pivoted thereto the standard B, in combination with the adjustable brace C, and toggle arm h, rigidly connected to the lower end of the brace and pivoted to the standard, substantially as and for the purpose set forth.

**245,716. JOHN H. HARIG,** Torrance, Miss. Plows. Aug. 16, 1881. Filed Feb. 9, 1881.

Claim. In a plow, the beam A, slotted standard B, adjustably connected to the said beam, and land bar C, having notch c fastened to said standard, combined with the hooked rod D, to engage the heel of the land-bar, the said rod passing loosely through the beam A and slotted standard B, whereby the pitch of the standard is adjusted, substantially as and for the purpose specified.

**246,416. WILLIAM RICHARDS,** Cairo, W. Va. Plows. Aug. 30, 1881. Filed July 21, 1881.

Claim. 1. A colter curved in its front outline and having a knife-edge, a dull edge below the knife-edge, and a rearwardly-curved point, as shown and described.

2. The combination of the bifurcated colter F, beam A, braces I I, and the standard B with the bolts L, G, H, and J, the latter passing through the braces, standard, and beam, as shown and described.

3. The combination of the bifurcated colter F, pivotally-attached to the beam A, the braces I I, rod M, and hook-plate N, as shown and described.

**246,496. ISAAC R. GILBERT,** Charlestown, Ind. Plow-Standards. Aug. 30, 1881. Filed Apr. 19, 1881.

Claim. The combination, with a plow-beam and a sliding block formed with a slot and lugs, as described, of a slotted standard and an inclined brace, said brace being pivoted to the standard and block, all constructed and arranged to operate as herein set forth.

**247,970. WILLIAM McG. TOWERS and ARTHUR R. SULLIVAN,** Rome, Ga. Plows. Oct. 4, 1881. Filed Feb. 19, 1881.

Claim. The combination, in a plow, with the bent and shaped metal standard D, surrounding the plow-beam, of the clamping nut-bolt e, arranged at a point immediately below and under the plow-beam, whereby the standard is securely clamped and held to the beam without the aid of a wedge or locking-block, substantially as shown and described.

**247,989. MARK COOPER,** Spartanburg, S. C. Plows. Oct. 4, 1881. Filed July 27, 1881.

Claim. The plow-standard constructed of the pieces *a a'*, the piece *a* being bent at right angles above the beam, and passing through the perforation in the upper end of piece *a'*, in combination with and clasping the beam *A* and the bolt *h*, all constructed and operated as and for the purpose set forth.

**10,007. MARK COOPER,** Spartanburg, S. C. Plows. Original No. 247,989. Dated Oct. 4, 1881. Reissued Jan. 10, 1882. Filed Dec. 22, 1881.

Claim. 1. The plow-standard constructed of the pieces *a a'*, the piece *a* being bent at right angles above the beam and passing through the perforation in the upper end of piece *a'* in combination with and clasping the beam *A* and the bolt *h*, all constructed and operated as and for the purpose set forth.

2. The double rear brace *C*, adapted to receive a movable grass-cutter or other attachment *N*, secured by bolt and nut *P*, and its lower portion bent to form the land-side, in combination with and pivoted to the lower end of the front double standard *B*, at hole *h*, all constructed arranged and operating substantially as set forth.

**248,773. THOMAS F. McNAIR,** Dawson, Ga. Plows. Oct. 25, 1881. Filed Apr. 6, 1881.

Claim. In combination with the standard and the brace, pivoted to the plow beam and slotted at their lower ends, the plow-shovel and root-cutter, constructed as described, and adjustably secured to the standard by the lower bolt, which secures the standard and brace, substantially as and for the purposes specified.

**249,079. ISAAC V. NEWSOM,** Mount Meigs, Ala. Plows. Nov. 1, 1881. Filed July 7, 1881.

Claim. The combination, with the plow-beam carrying a lower block, *D*, and an upper notched block, *G* of the bifurcated standard *B* straddling said beam, hinged at *C* to said block *D*, slotted near the top, and held by bolt and nut to any of the notches in block *G*, as and for the purpose specified.

**250,151. JOHN LANE,** Hyde Park, assignor to the Hapgood Plow Co. Alton, Ill. Plows. Nov. 29, 1881. Filed July 12, 1881.

Claim. 1. The combination, with a bent plow-beam, *A*, having a thinned and widened perpendicular foot *B*, of the extension or toe *a* constructed to extend forward from the foot of the beam and provided a seat on which the share is supported, substantially as and for the purpose set forth.

2. The combination, with a bent plow beam having a foot *B*, with a toe *a* of the heel *b*, constructed and arranged substantially as and for the purpose set forth.

3. The bent plow-beam *A*, having the widened foot *B*, and having the heel *b* formed on the rear edge of the foot *B*, as shown, in combination with the tooth *C*, the eyebolts *k k*, and the bar *e*, substantially as and for the purpose set forth.

**250,152. JOHN LANE,** Hyde Park, assignor to the Hapgood Plow Co. Alton, Ill. Listing Plows. Nov. 29, 1881. Filed July 12, 1881.

Claim. In a listing plow, the combination of the bent plate *A*, forming flanges *a* and *b*, perforated, as shown, with the center bar, *B*, bent plow-beam *A'*, share *S*, having wings *y* and *z* and the mold-boards *m* and *n*, substantially as and for the purpose set forth.

**253,331. GEORGE S. AGEE,** Mint Hill, Mo. Shovel - Plows. Feb. 7, 1882. Filed Sep. 24, 1881.

Claim. 1. In a shovel-plow, the curved plow-beam *A*, formed, as described, with a slotted lower end and with the inclined lug *E*, substantially as and for the purpose set forth.

2. In a shovel-plow, the combination, with the beam *A*, having its lower end slotted and provided with the inclined lug *E*, of the shovel *D*, secured at its upper part to the said lug and welded along the center line to the beveled forward end of the bar *B*, secured in the slotted end of the beam, substantially as and for the purpose set forth.

**225,283. MILTON T. HANCOCK,** Thomasville, Ga. Plows. Mar. 21, 1882. Filed Feb. 25, 1882.

Claim. 1. The combination, with the curved beam-standard and the adjustable mold-board *a*, of the open box-plate *c*, the adjustable land-bar *b*, the screw-bolts, and their confining-nuts, the said box-plate and land-bar being secured to the opposite sides of the standard by the screw-bolts by which the land-bar is secured, substantially as herein set forth.

2. The combination, with the plow-beam, of the handles *j*, provided with slots *r r*, the bent screw-threaded rod *z*, bound and tired to the beam and passed through said handle-slots, the right-and-left-screw nut *s*, and the shoulder-ed cross-brace *t*, arranged within the said handle-slots, where the handles are adapted for vertical adjustment, and braced and supported vertically and laterally, substantially as herein set forth.

3. The combination, with the beam, of the handles having the slots *r r*, the screw-threaded rod *z*, the clasp or link *n*, and the right-and-left-screw nut *s*, the said rod being passed through the handle-slots and having the inner and outer bengs, *i' i<sup>2</sup>*, on opposite sides of said handles, and united above the latter by the said screw-nut, whereby the handles are adapted to be set high or low, and to vary the distance between the handles to suit a high or low position thereof, substantially as described.

**257,639. MATTHEW M. BEARD,** Holmes County, Miss. Plows. May 9, 1882. Filed Sep. 24, 1881.

Claim. The combination, with connecting-bolts, of the front shank, A, having the plain slot C, the notched slot D, and the rabbet E, the frame F, having apertures G H and flange J, the curved plate K, having the transversely-slotted angle-iron L, and the land-side having aperture N, as described.

**257,861. THEODORE E. GOLDEN,** Columbus, Ga. Plows. May 16, 1882. Filed Mar. 1, 1882.

Claim. The combination, with the beam A and standard C, provided with the upwardly and forwardly projecting side pieces, g, of the brace B, provided with perforations H, or their equivalent, arranged on an arc of a circle, the bolt D, extending through the upper ends of the side pieces, g, and the brace, and serving to clamp the standard in any desired adjustment, and bolt F, extending through the standard and through or beneath the beam, substantially as set forth.

**259,292. ANDREW G. COX and RICHARD A. JOHNSON,** Newnan, Ga. Plows. June 13, 1882. Filed Apr. 19, 1882.

Claim. 1. The combination of the plow-beam A, having segmental block P, provided with recesses Q, and V-shaped bracket C, the standard H, consisting of bars I, pivoted to the sides of bracket C, and the cam-lever M, pivoted between the upper ends of the bars I, and having handle O and tooth N engaging the recessed block P, as set forth.

2. The combination, with the plow-beam, of the bracket C, having its rear end secured permanently to said beam and its forward screw-threaded end adjusted in a recess in said beam, and provided with a nut, G, and the standard H, pivoted to said bracket, and provided at its upper end with a toothed cam-lever engaging a segmental notched block on the upper side of the beam, as and for the purpose set forth.

**259,515. JOHN H. FELDMANN,** St. Louis, Mo. Shovel-Plows. June 13, 1882. Filed Dec. 7, 1881.

Convex mold-boards hooked under the share and adjustable on a curved cross-bar convertible into a side-hill plow.

Claim. 1. The combination of the mold-boards E E, each formed with a sleeve e<sup>2</sup>, having set-screw f', the share D, and shoe C, having rigid cross-bar F, whose ends enter the sleeves e<sup>2</sup>, the said mold-boards being hinged to the said share, as and for the purpose set forth.

2. The combination of shoe C, having projections d' d', the bow-shaped share D, having arm d, bifurcated standard C', and the wedge d<sup>2</sup>, as set forth.

3. The combination of the adjustable mold-boards E E, each formed with a hook, e, the

share D, having eyes e' e', the shoe C, and cross-bar F, as set forth.

**259,900. CHARLES L. MOSS,** Carthage, Miss. Plows. June 20, 1882. Filed Jan. 21, 1882.

Claim. In combination with the plow-beam A, the curved standard B, having secured to its lower end a detachable point provided with an abutment, N, the curved mold-board L, resting against the abutment at its lower end, and provided with an extension, M, at its upper end, adapted to be secured to the standard by the bolt D, and the detachable heel-piece secured by the bolts S and G, substantially as specified.

**261,001. JOHN LAWRIE,** Brockston, Ind., assignor of one-half to John W. Holtzman, same place. Shovel-Plows. July 11, 1882. Filed July 12, 1881.

Claim. The plow-point a, having the perforated notched bracket e, with the angular securing-arms f and f', the latter having the shorter angle, in combination with the bifurcated and slotted standard, the bolts i and r, and the slotted sliding and locking catch, substantially as specified.

**263,637. WISP J. N. WELBORN,** Cottontdale, Tex. Attachments for Plows. Aug. 29, 1882. Filed June 26, 1882.

Claim. The herein-described guiding attachment for plows, consisting of the blade or runner A, having convex edge a', concave edge a<sup>2</sup>, point b, offset B, and slotted seat or projection C at right angles to the blade, substantially as and for the purpose set forth.

**265,324. WILLIAM O. JOHNSON,** Alma, Mich., assignor of one-half to Fred. D. Adams, same place. Shovel Plows. Oct. 3, 1882. Filed July 1, 1880.

All the joints are pivoted, so that all move when the brace is adjusted.

Claim. 1. The combination of the share-standard A and beam B, united by a hinge-joint, and provided respectively with the eyebolt c and sector-bracket b, the latter having a series of adjusting-holes, and the diagonal brace F, united to said eyebolt and bracket by screw-bolts, and composed of parallel flat bars, whereby the strain on said bolts is equalized, and a colter-socket is formed below the beam, as herein specified.

2. The combination of the share-standard A and beam B, united by a hinged-joint, and provided respectively with the eyebolt c and sector-bracket b, the latter having a series of adjusting holes, a diagonal brace or braces, F, united to said eyebolt and bracket by screw-bolts, and a colter, D, fastened at its upper end within a vertical mortise in the beam B, and supported below the beam by said brace or braces F, whereby the shovel or share and the colter may be adjusted and supported as to angle simultaneously and by the same means, in the manner set forth.

3. In combination with the share-standard A and beam B, united by a hinge-joint, the devices for adjusting the former as to angle, and the handles C, united by a pivotal cross-bar f to the extended upper end of said standard A, substantially as herein specified, the adjusting-standard G, secured within a recess in the top of said beam by a pivotal bolt, and projecting upward between the front ends of the handles, and united with the latter by a vertically-adjustable clamping-bolt, g, substantially as shown, for fastening the handles at different heights independently of the pitch of the share-standard, in the manner set forth.

**265,566. ROLAND J. BEST,** Lancaster, S. C. Iron-Foot Plows. Oct. 10, 1882. Filed May 29, 1882.

Claim. In a plow, the foot-brace A, its up-

per end being formed into a handle-socket, its lower end slotted and provided with teeth C, in combination with the foot D, having teeth C', and the clamping-bolt h, substantially as shown and described.

**268,985. DANIEL BEETS,** Clinton, Tenn. Plows. Dec. 12, 1882. Filed Mar. 7, 1882.

Claim. As an improved article of manufacture, the herein-described plow-frame, having its standard and beam connected from above by the adjustable slotted angle-plate b, and secured from below by the hinged bolt C, passing through the said beam and standard, and provided with jam-nuts c c, and handles loosely secured to said beam, whereby the plow is adapted to be secured in any desired angle with respect to the beam, substantially as shown and described.







SIDE-HILL.

| Plate                                 | Claim | Plate | Claim                                     | Plate | Claim |
|---------------------------------------|-------|-------|---|-------|-------|
| Abbott, H. B.                         | 939   | 580   | Hakes, H. B.                              | 649   | 584   |
| Ackley, H. R.                         | 968   | 592   | Hall, S.                                  | 927   | 575   |
| Atkins, H. S.                         | 929   | 576   | Hall, J. S.                               | 928   | 576   |
| Atkins, H. S.                         | 930   | 577   | Hall, J. M.                               | 930   | 577   |
| Altendorfer, P. and B.                | 921   | 573   | Hall, J. S.                               | 948   | 584   |
| Anderson, J. G.                       | 975   | 595   | Hall, J. S.                               | 951   | 584   |
| Anschutz, A. Seidel, A. and Weber, M. | 950   | 584   | Hapgood, J.                               | 945   | 583   |
| Arnett, W. D.                         | 965   | 591   | Hapgood, J.                               | 954   | 586   |
| Babbitt, W. H.                        | 924   | 575   | Hardin, A. L.                             | 937   | 579   |
| Babbott, W. H.                        | 927   | 576   | Harrison, N., and Metcalf,                | 929   | 576   |
| Baker, B. F.                          | 948   | 584   | J. W. H.                                  | 928   | 576   |
| Bakes, F. G.                          | 936   | 579   | Haskin, O.                                | 968   | 592   |
| Barager, C. F.                        | 933   | 577   | Hartmann, J.                              | 951   | 585   |
| Barnaby, A.                           | 923   | 574   | Hartmann, J.                              | 957   | 587   |
| Barnett, J. W. and Hobbs, T. J.       | 963   | 590   | Hartmann, J.                              | 960   | 588   |
| Barrows, F. A.                        | 962   | 589   | Hartmann, J.                              | 961   | 589   |
| Barton, A.                            | 928   | 570   | Hawse, B. B.                              | 971   | 594   |
| Barton, W. C.                         | 968   | 592   | Hodge, E. C.                              | 942   | 582   |
| Bethea, J. C.                         | 936   | 579   | Hodge, E. C.                              | 944   | 582   |
| " " (R)                               | 930   | 579   | Hodge, E. C.                              | 959   | 588   |
| Bieker, F.                            | 952   | 585   | Holtrock, F., Howe, J. A., and Nourse, J. | 941   | 581   |
| Bliven, S. R.                         | 930   | 570   | " " " (R)                                 | 941   | 581   |
| Bouchet, P.                           | 962   | 589   | Holley, J. P.                             | 972   | 594   |
| Brewster, L.                          | 925   | 575   | Howe, G. W.                               | 950   | 584   |
| Brooks, C. C.                         | 969   | 592   | Howe, J. A.                               | 970   | 590   |
| Bryan, F. C.                          | 969   | 593   | Hubbell, M. R.                            | 955   | 580   |
| Bryan, F. C.                          | 977   | 597   | Hunt, J. V.                               | 921   | 573   |
| Burch, L. D.                          | 931   | 577   | Iverson, L. L.                            | 652   | 585   |
| Burch, L. D.                          | 932   | 577   | Jennings, E.                              | 944   | 582   |
| Burgess, F. J.                        | 950   | 584   | Jones, W.                                 | 933   | 577   |
| Butler, J.                            | 946   | 583   | Jones, J. W.                              | 941   | 581   |
| Chapman, L.                           | 945   | 583   | Jordan, J. W.                             | 922   | 574   |
| Chapman, L.                           | 947   | 583   | Jordan, J. W.                             | 923   | 574   |
| Chapman, L.                           | 966   | 591   | Knapp, R. L.                              | 955   | 586   |
| Chapman, L.                           | 967   | 592   | Knapp, R. L.                              | 976   | 596   |
| Chase, W. L.                          | 926   | 575   | Knox, S. A.                               | 961   | 589   |
| Chase, M. L.                          | 926   | 575   | Konig, J.                                 | 974   | 595   |
| Clough, A. S.                         | 970   | 593   | Legg, L. W. and E. D.                     | 929   | 576   |
| Coodington, R. and McCall, D.         | 933   | 577   | Leonard, G. W.                            | 944   | 582   |
| Conaway, W. H.                        | 950   | 584   | Leslie, B. J.                             | 971   | 593   |
| Connelly, W. E.                       | 995   | 591   | Leyvo, W. E.                              | 937   | 579   |
| Cowley, W. A.                         | 930   | 588   | Lufkin, C. M.                             | 933   | 578   |
| Cowley, W. A.                         | 973   | 595   | Lufkin, C. M.                             | 935   | 578   |
| Cox, H.                               | 925   | 575   | Lufkin, C. M.                             | 965   | 591   |
| Culver, F. and J. H.                  | 955   | 586   | McCabe, J.                                | 954   | 586   |
| Daniel, C.                            | 961   | 589   | McCormick, C. H.                          | 921   | 573   |
| Daniel, C.                            | 963   | 590   | McKesson, E.                              | 934   | 578   |
| Day, D. C.                            | 944   | 583   | Macomber, T. S.                           | 953   | 585   |
| Delano, C.                            | 922   | 573   | Manuel, D. A.                             | 939   | 580   |
| Dennis, S. Jr.                        | 929   | 576   | Manuel, D. A.                             | 940   | 580   |
| Dexheimer, J. P.                      | 951   | 585   | Matthews, E. G.                           | 938   | 580   |
| Doe, A.                               | 928   | 576   | Matthews, E. G.                           | 943   | 582   |
| Durfee, W. H.                         | 975   | 596   | Matthews, E. G.                           | 946   | 583   |
| Edkblute, L. S.                       | 960   | 591   | Matthews, E. G.                           | 950   | 588   |
| Eldred, A.                            | 926   | 575   | Matthews, E. G.                           | 969   | 592   |
| Eldred, D.                            | 931   | 577   | Merk, M.                                  | 930   | 576   |
| Ellis, M.                             | 953   | 585   | Miller, G. C. and Henry, R.               | 932   | 577   |
| Ewing, R. H.                          | 932   | 577   | Morris, B. F.                             | 961   | 589   |
| Feldmann, J. H.                       | 975   | 596   | Mott, J.                                  | 935   | 578   |
| Felt, J. S.                           | 974   | 595   | Neff, J. Jr.                              | 935   | 575   |
| Flansburgh, P. H.                     | 937   | 579   | Newcomb, D. H. B.                         | 927   | 576   |
| Fowler, N. M.                         | 964   | 591   | Nourse, J.                                | 960   | 588   |
| Fulk, C. E. and Good, J. J.           | 952   | 585   | O'Neil, W.                                | 927   | 577   |
| Gochmour, D. Jr.                      | 924   | 574   | Parker, T. and Downing, J.                | 956   | 587   |
| Gogel, J.                             | 959   | 588   | Parker, T.                                | 953   | 585   |
| Gossett, W. I. and Stark, J. P.       | 956   | 586   | Parsons, W. W.                            | 951   | 585   |
|                                       |       |       | Peterson, G. W.                           | 966   | 591   |
|                                       |       |       | Pettengill, C. B.                         | 945   | 583   |
|                                       |       |       | Poindexter, F.                            | 949   | 584   |
|                                       |       |       | Price, H.                                 | 935   | 578   |
|                                       |       |       | Pritchard, J. P.                          | 943   | 582   |
|                                       |       |       | Rabb, W. S.                               | 942   | 582   |
|                                       |       |       | Rich, M.                                  | 923   | 574   |
|                                       |       |       | Robb, D.                                  | 925   | 575   |
|                                       |       |       | Ronat, L.                                 | 639   | 580   |
|                                       |       |       | Rorabaugh, J.                             | 924   | 575   |
|                                       |       |       | Sanborn, A.                               | 932   | 577   |
|                                       |       |       | Sanborn, A.                               | 948   | 584   |
|                                       |       |       | Sattler, H.                               | 969   | 593   |
|                                       |       |       | Sattler, H.                               | 973   | 595   |
|                                       |       |       | Schnult, L.                               | 977   | 597   |
|                                       |       |       | Scoville, L. and H. H.                    | 940   | 580   |
|                                       |       |       | Sessions, F. E.                           | 960   | 588   |
|                                       |       |       | Shaw, H. F. and G. F.                     | 956   | 586   |
|                                       |       |       | Shaw, H. F. and G. F.                     | 962   | 589   |
|                                       |       |       | Sloop, H.                                 | 838   | 580   |
|                                       |       |       | Smith, E. J. and Griswold,                |       |       |
|                                       |       |       | II.                                       | 925   | 575   |
|                                       |       |       | Smith, H. B.                              | 934   | 578   |
|                                       |       |       | Speer, W. W.                              | 945   | 583   |
|                                       |       |       | Strai, W.                                 | 958   | 587   |
|                                       |       |       | " " (R)                                   | 958   | 587   |
|                                       |       |       | Strait, W.                                | 968   | 590   |
|                                       |       |       | Strait, W.                                | 971   | 593   |
|                                       |       |       | Steinmetz, C. P.                          | 939   | 580   |
|                                       |       |       | Strattan, C. H.                           | 954   | 586   |
|                                       |       |       | Sturtevant, Z. W.                         | 941   | 581   |
|                                       |       |       | Swartz, P. E. and Arnot, A.               | 970   | 593   |
|                                       |       |       | Sweetland, H. H.                          | 949   | 584   |
|                                       |       |       | Sykes, C. W.                              | 934   | 578   |
|                                       |       |       | Tate, E.                                  | 965   | 591   |
|                                       |       |       | Teeter, L.                                | 923   | 574   |
|                                       |       |       | Thompson, G. W.                           | 936   | 578   |
|                                       |       |       | Thompson, G. W.                           | 943   | 582   |
|                                       |       |       | " " (R)                                   | 943   | 582   |
|                                       |       |       | Thurman, J. W.                            | 926   | 575   |
|                                       |       |       | Teitz, J.                                 | 937   | 579   |
|                                       |       |       | Tinkler, J.                               | 922   | 574   |
|                                       |       |       | Tramp, J.                                 | 924   | 574   |
|                                       |       |       | Tufts, S. G.                              | 943   | 581   |
|                                       |       |       | Tyler, W. H.                              | 940   | 581   |
|                                       |       |       | Underhill, H. R.                          | 963   | 590   |
|                                       |       |       | Van Camp, E.                              | 931   | 577   |
|                                       |       |       | Vars, N.                                  | 934   | 578   |
|                                       |       |       | Vickery, D. F. and Prickett, W. P.        | 959   | 587   |
|                                       |       |       | Wadleigh, S. F., Roberts, O. N. and G. S. | 964   | 590   |
|                                       |       |       | Warlick, W.                               | 952   | 585   |
|                                       |       |       | Watson, F.                                | 938   | 580   |
|                                       |       |       | Weaver, J.                                | 921   | 573   |
|                                       |       |       | Wiard, H. and Bullock, W. R.              | 958   | 592   |
|                                       |       |       | Wilder, J. B.                             | 927   | 576   |
|                                       |       |       | Wilson, L. E. and McCanles, J. E.         | 963   | 590   |
|                                       |       |       | Woodbury, J. L. and G. L.                 | 970   | 593   |
|                                       |       |       | Woodworth, S. F.                          | 970   | 596   |
|                                       |       |       | Wright, A.                                | 938   | 580   |
|                                       |       |       | Wisley, S. H.                             | 956   | 586   |

## SIDE-HILL.

### (Drawing Lost.)

**JAMES Y. HUNT,** Tunbridge, Vt. Plows.  
Dec. 24, 1824. No Claim.

The plow, except one handle, may be made as usual, meaning the wood part; the colter, wrought - iron, eighteen inches long, with a swell in the hind part sufficiently large for a gudgeon to be put in three-fourths of an inch and also a gudgeon hole in the post behind on the land-side, of said dimension. There is to be one land-side made of cast or wrought iron, said land-side to be one and a half inch square, with two shims and mold-boards, made of wood or iron, attached to the same by welding, screwing, or casting. The land-side, with its appendages, is to be connected with the colter and said post on the land-side by gudgeons three-fourths of an inch diameter, and so constructed that by turning said plow over the shims may be shifted in such a manner by drawing a bolt, which is run through the hind post and supports the shims either way. You may plow, turning the earth all one way, by placing the nigh ox in the furrow going, and the off ox in the furrow returning. The plow may be constructed on a greater or smaller scale, the main principle contended for is the turning the plow on the gudgeons.

**PHILIP and BENJAMIN ALTENDER-FER,** Richmond, Penn. Side Hill Plows.  
June 11, 1829. No Claim.

Beam with double mold - board pointing both ways, but both falling on the same side; two shares and two colters also pointing in opposite directions, the space between the shares being closed, and also the mold-board being closed on the land-side. To the above mentioned beam there is another beam which runs or rather revolves upon a pivot in the centre of the first mentioned beam. To the latter beam the handles are attached and when it is desired to turn the horses it can be done at pleasure. The upper beam is secured upon the lower by a screw upon the pivot and by an iron pin at the end to which the handles are attached; which pin can be drawn out at pleasure whenever it may be desirous to change the direction of the plow.

**CYRUS H. McCORMICK,** Rockbridge Co., Va. Hill Side Plows. June 13, 1831.

Claim. The combination and arrangement of the different parts of the described plow so as to effect the turning and securing the mold-board and other parts of the plow to the share but particularly in making the mold-board to turn whilst the share remains stationary and afterwards locking it to the share, together with an improvement in the construction of the share.

**JOHN WEAVER,** Brownsville, Pa. Plows  
Aug. 17, 1832.

Claim. 1. The moving beam as applied to single and hillside plows.

2. The double sheth.

3. The shoe.

4. The pivot passing through the shoe on which the irons turns.

5. The manner in which the colter is attached to the sheth.

6. The plate on the under side of the beam, which takes the stress off the bolt which comes up through the beam, and on which the beam, moves.

7. The regulating cap or cam.

8. The joint or hinge with two tempering-screws, one for regulating the band and the other for altering the projection of the mold-board to suit the different grades of hills.

9. The rod or brace which extends from the sheth, to the hind end of the mold-board.

10. The bolt on the foot of the hind sheth, on which the supporting rod or brace turns.

### (Drawing Lost.)

**CALVIN DELANO,** Livermore, Me. Side Hill Plows. July 5, 1833. No Claim.

There are two shares, each eighteen inches long and sixteen inches wide, with sockets made in the hind ends to receive the chips. The chips are two feet long each, the ends of which must be put six inches into the sockets prepared in the shares. The chips and shares are opposite each other. There is one colter, one end put into one share and the other end into the other share. The wings of the shares are facing each other, and are placed sixteen inches apart. The chips are put two feet apart at the hindermost ends, and are connected together by two posts, one at the hind end and the other near the sockets of the shares. A stay or square piece of timber is put about twelve inches behind the wings of said shares and about fifteen inches from the hind post, supported by two rounds put into said stay and post. One end of the mold or furrow board is made fast to the forward post and fitted to each share. The other end is made fast to the stay, the center of said mold-board running by the stay six or eight inches. It commences and continues swelling from the stay to the end sufficient to turn the furrow. The said mold-board may be made in one or more pieces. The beam is about five feet long and four inches square at the center or middle, is straight on the inside, and diminishes on the other sides to the ends. The said beam is put on the landside of the plow, one end hung at the center of the hind post on a bolt put through the beam-post and handle, secured by a nut and also by a knee made fast to the beam, which goes on the forward post so as to slip. There is a clasp made fast to the beam and made to

go round the colter, so that the beam will slip from one share to the other.

The handles are about three feet long, hung at the hind end of the plow, one hung at the center of the mold-board, near the hind end, with a hinge, the other at the center of the hind post on a bolt that is put through the beam and post. The said handles are made fast together by two or more rounds, and hook up to the hind ends of the chips in staples there fixed. Said handles are made stationary and firm at pleasure by two stay-braces, which are hung by hinges to the upper round connecting said handles, and at the other end unite in a triangular form, terminating nearly in a point, having two bolts or hooks, one on each side of said point, for the purpose of fastening it in the aforesaid staples. The beam, when plowing, is slipped up to the share, which receives the chip the handles hook onto. In order to go back, unhook the handles, turn the plow over, and hook the handles to the other chip. When the team pulls, the beam will slip up to the other share.

The plow is designed for the purpose of plowing on the side of hills, and for that purpose is particularly useful.

In operating, a furrow is first plowed at the foot or base of the hill. When the team is going back (returning) another furrow is plowed, turning the furrow all the time downhill. Said plow will also turn well on level ground.

The dimensions given are for a common breaking-up plow. With this plow a team will break up as much ground on the side of a hill as it will upon level land with the common plow in the same time.

**JOSEPH TINKLER**, Warwick, Ohio.  
Plows. Mar. 2, 1835.

Claim. 1. The combination of the two perfect common plows in one, with the elevated point of the one, while the other is in the ground.

2. The revolving neck and the principal of moving the handles, from side to side at pleasure.

**JOHN W. JORDAN**, Rockbridge, Va.  
Side-Hill Plows. Oct. 28, 1835.

Claim. The combination and arrangement of the parts of the described plow, but I particular claim the form of mold-board and the manner of reversing it, though I make no claim to the principal of the revolving mold-board.

**653. MARTIN RICH**, Ithaca, N. Y.  
Side-Hill Plows. Mar. 24, 1838.

Claim. The manner of holding and securing the shifting-handles by means of the arm, the manner of confining the two standards in the beam by means of a staple and wedge, as described, and the converting the double into two single plows, as described.

**959. ISAAC TEETER**, Johnston, Pa.  
Side-Hill Plows. Oct. 3, 1836.

Claim. 1. The before described mode of

constructing a hill-side plow or a plow that will throw the furrow alternately to the right or left, or altogether one way; that is to say, by fastening the mold-board to a horizontal roller turning on gudgeons in a recess in a permanent landside, by a single and forked brace secured to the mold-board and roller, and further secured by another forked brace, attached to the one last-mentioned by a horizontal rod, the journal or pivot of which brace turning in aperture in the heel of the landside.

2. The lever *o* and notched plate *T*, for tightening the hook that secures the rear end of the mold-board to the beam, in the manner herein described.

**1,128. JOHN W. JORDAN**, Lexington, Va. Side Hill Plows. Apr. 19, 1839.

Claim. The method of adjusting the height of the mold-board, by means of the slide as here in described, in combination with the mode of securing by means of the band, bolt and forks, substantially in the manner described.

**1,320. AMBROSE BARNABY**, Ithaca, N. Y. Plows. Sep. 11, 1839.

Claim 1. The mode of changing a double mold-board plow to serve either as a right or left hand one for hill-side and other purposes, by shifting the beam and securing it on the cross piece as herein described.

2. The attaching the colter to the upright standard, or cutting edge of the mold board by means of the clasp and stay instead of the beam as described.

**1,632. DANIEL GOCHNOUR, JR.**  
Conemaugh, Pa. Side Hill Plows. June 12, 1840.

Claim. 1. The manner in which I have combined the mold-board with the land-side by making the mold-board turn on the point of the land-side instead of on a roller placed in the bar of the landside at a distance from the point, as in the Teeter plow, by means of which arrangement I am enabled to use the shares of the Teeter plow alternately as a colter and share, thereby dispensing with the ordinary fixed colter employed in said Teeter plow.

2. In combination therewith, the method of securing the mold board to the alternate sides of the landside by means of the catch *L* and rod *N*, the whole being constructed and arranged as herein set forth.

**4,186. JOSEPH TRUMP**, Connellsville, Pa. Side Hill Plows. Sep. 9, 1845.

Claim. 1. The manner of connecting the right and left hand plows, *a* and *b*, to the beam by means of the cap piece *c*, the bolt *m*, oblong opening *k*, self-acting spring-latch *P*, and notches *n n*, all combined and operating substantially in the manner and for the purpose herein set forth.

2. The combination of the detaching-cord *r*, latch *P*, spring *q*, cap-piece *c*, and notches *n n*,

arranged and operating substantially as herein set forth.

**4,870. JAMES RORABAUGH,** Lutney's Creek, Va. Side Hill Plows. Dec. 3, 1846.

Claim. The shape and the use of the hook H, in combination with the conical mold-board, for the purpose to keep the mold-board D in its position, and in same time to serve as a guide in the motion of the mold-board when thrown from one side to the other of the plow, as described before.

**5,363. WM. H. BABBIT,** Green Co., Pa. Side-Hill Plows. Nov. 6, 1847.

Claim. The invention and application of the above-described swivel-point, which connects the sheth of the plow with the beam.

**5,677. E. J. SMITH and H. GRISWOLD,** Delhi, N. Y. Side-Hill Plows. July 25, 1848.

Claim. 1. The central angle or projection, s, on the mold-board, dividing the after portion of the same into two faces for the purpose of turning over a furrow, and thereby adapting our hillside-plow to flat-land plowing, substantially as herein set forth.

2. The manner of confining the share b to the mold-board by means of the recess h, the point i, and the ears j on the mold-board, the socket g and the ears w w on the share, combined with each other and with the bolt v, substantially in the manner herein set forth.

**5,909. HAYWOOD COX,** Peach Bottom, Va. Side-Hill Plows. Nov. 7, 1848.

Claim. The employment of a horizontal plate, I, perforated with an opening made in the form of the letter E, and fixed to the head of the standard S<sup>2</sup>, in combination with the perforated triangular plate E and curved dog L, or lever, and inclined rod G, on which the double mold-board D and landside turn, by which the plow is alternately changed from a right to a left hand plow for plowing on the sides of hills, and also for converting it into a cultivator for plowing between potatoes, corn, &c., as before described.

**5,922. IRAM BREWSTER,** Stamford, N. Y. Side-Hill Plows. Nov. 14, 1848.

Claim. 1. The hollow mold-board and its combination with the standard A A and the spiral spring G, substantially as described, and for the purpose set forth.

2. The combination of the hollow plow-point with the mold-board, as described, so as to make the upper and lower sides of the mold-board alike, substantially in the manner and for the purpose set forth.

**6,553. DANIEL ROBB,** Springfield, Ill. Side-Hill Plows. June 26, 1849.

Claim. 1. The extension of the mold-board as above described, and the arrangement of the mold-board so as to make it and the landside revolve together and enable either the upper

or lower edge to act as a share and to throw the soil upon either side of the plowman.

2. In combination with the above, the arrangement of the iron rod C D and the iron bar I, M and its arm G H, so as to secure the mold-board in a firm position when used.

3. The constructing of a three-sided landside which is not fastened permanently to the wood-work, but acts independently thereof, as herein specified and represented.

**6,606. ALLEN ELDRED,** Little Falls, N. Y. Side-Hill Plows. July 24, 1849.

Claim. Constructing a hillside-plow, substantially in the manner described, by making the entire landside stationary, and combining therewith two mold-boards revolving on a shaft above said landside, so as to turn a furrow on either side, when brought into position, by means of a crank or other analogous devices near the handles of the plow.

**6,677. JOHN W. THURMAN,** Buchanan, Va. Side-Hill Plows. Aug. 28, 1849.

Claim. The double or right and left hand mold-boards a and b, revolving upon a horizontal shaft, c, placed across the beam A, as herein described, using for that purpose cast or wrought iron or any other material that will answer the desired purpose.

**7,505. MARK L. CHASE,** Frankfort, Me., assignor to Wm. L. Chase, Boston, Mass. Side-Hill Plows. July 16, 1850.

Claim. 1. The combination of the adjustments of the hooked bar r with those of the main brace K, whereby the pitch of the mold-board may not only be increased or diminished, but the proper support of the upper part of the plowshare be maintained under any angle of pitch, all as specified, the same also admitting of a change of the mold-board, viz., the substitution of one larger or smaller.

2. The above-described peculiar construction of the sward-cutter with its groove to receive the sharp edge of the landside, in combination with the notch in the landside of the share for receiving its lower end, and the notch or shoulder in the upper part of the sheth for receiving its upper end, substantially as specified.

**7,518. WILLIAM L. CHASE,** Boston, Mass. Side-Hill Plows. July 22, 1850.

Claim. The device for attaching and detaching the removable shoe, having the mold-board hinged to it and being fastened to the landside, substantially as herein set forth.

**9,519. SAMUEL HALL,** Pittsburg, Pa. Side-Hill Plows. Jan. 4, 1853.

Claim. The manner of arranging the mold-board upon the landside, to wit, placing their hinges at such a distance from each other on each side of the center of the landside that each mold-board may be supported by the edges s s and projection m as far as practicable from the hinges and rest upon the grooves

near the middle of the landside, substantially as and for the purposes herein set forth.

**9,801. D. H. B. NEWCOMB,** Conewango, N. Y. Side-Hill Plows. June 21, 1853.

Claim. 1. Arranging the two shares of a double plow, which alternately runs forward on a central wheel, in such manner that the share which for the time being is in the rear shall be carried above the bottom of the furrow, substantially as described.

2. The method of relieving the swivel and of steadyng and supporting the beam when set and in turning by means of a semicircular guide or track, arranged and operating in the manner and for the purposes herein set forth, in connection with a catch at each end of the track to hold the beam in place when properly adjusted.

**9,808. J. B. WILDER,** Belfast, Me. Side-Hill Plows. June 21, 1853.

Claim. Having the mold-board F so constructed, arranged, and attached to the share C and landside plate B that said mold-board may be turned, as set forth, independently of the share, and a proper curved outer face be presented to the sod on either side of the plow, the mold-board being constructed with two faces, *e. f.* precisely of the same form, as herein shown.

**9,944. WM. H. BABBITT,** Waynesburg, Pa. Side-Hill Plows. Aug. 16, 1853.

Claim. Constructing and arranging head C in the hinge which connects the beam of the plow with upright A, so as to lock said hinge by means of bolt M before the pivot of said hinge, and by lever O behind said pivot, for the purpose of making the bearings in said hinge adjustable, substantially as herein set forth.

**10,107. N. HARRISON, and J. W. H. METCALF,** Ridgeville, Va. Side-Hill Plows. Oct. 11, 1853.

Claim. Curving downward and inward the beam in the rear part, so as to cause it to support the rotary part of the plow, which it performs in combination with the standard, in the manner and for the purposes set forth.

**12,310. ALFRED DOE,** Concord, N. H. Side-Hill Plows. Jan. 30, 1855.

Claim. 1. Two separate furrow-boards arranged to vibrate perpendicularly independent of the point and share so as to turn alternately right and left furrows on level or inclined land with equal facility, operating in combination with a swivel-point and shares arranged to vibrate under the landside with the body or front portion of the furrow-boards, substantially as described.

2. In combination with the swivel-point, shares, body, and one of the furrow-boards mentioned in the above claim, a sub-furrow-board arranged to vibrate perpendicularly, so constructed as to turn a subsoil-furrow in one

direction upon the top of the furrow just plowed in the opposite direction, thereby making it serve as a common plow in one direction and a subsoil in the other, substantially as described.

**15,321. ALVIN BARTON,** Syracuse, N. Y. Plows. July 15, 1856.

Claim. Jointing the upper and front points of the body of the plow to the colter, the whole being arranged and operated substantially in the manner and for the purposes set forth.

**17,430. JOHN S. HALL,** West Manchester, Pa. Side-Hill Plows. June 2, 1857.

Claim. Vibrating the beam in a circular bearing in the landside, together with the oblique adjusting and securing slots *i i*, the whole combined and arranged substantially as described, whereby the draft end of the beam may be vertically adjusted and the beam so secured to the landside as that it is impossible for the former to slip.

**17,547. HENRY S. AKINS,** Berkshire, N. Y. Side-Hill Plows. June 16, 1857.

Claim. Providing a reversible plow with a mold-board susceptible of torsion, or of being twisted to the right or left by means of being composed of a series of rods or bars of any desired number, so constructed and arranged with the other parts of the plow that they can be placed and held alternately in the different positions and directions required for turning alternate right and left furrows.

**17,579. L. W. and E. D. LEGG,** Speedsville, N. Y. Side-Hill Plows. June 16, 1857.

Claim. The combination of the adjustable cutter and the reversible mold-board, when operated substantially in the manner and for the purpose herein fully set forth and described.

**18,336. A. I. HARDIN,** Shelby, N. C. Side-Hill Plows. Oct. 6, 1857.

Claim. The arrangement of spring G with relation to handles H and beam A, in the manner and for the purpose described.

**19,496. SAMUEL DENNIS, Jr.,** Jasper, N. Y. Side-Hill Plows. Mar. 2, 1858.

Claim. The combination of two mold-boards and shares with a single stationary landside in the construction of a hillside-plow, substantially as described, for the purpose stated.

**20,812. MODEST MERK,** Rochester, N. Y. Side-Hill Plows. July 6, 1858.

Claim. The reversible convex-winged colter-share C, constructed as described, in combination with the plain subsidiary mold-board D, connecting-arm J, and furrow-bar E, arranged and operating substantially as and for the purpose set forth.

**20,984. SAMUEL R. BLIVEN,** McDonough, N. Y. Plows. July 27, 1858.

Claim. The reversible share E, attached to

the shaft F and connected with the lever G or its equivalent, in combination with the two mold-boards B B', the parts being arranged relatively with each other, as and for the purpose set forth.

**21,306. HENRY S. AKINS**, Speedsville, N. Y. Side-Hill Plows. Aug. 13, 1858.

Claim. 1. The reversible mold-board and colter in combination with a reversible clevis, in the manner and for the purposes substantially as described.

2. Attaching the hook L to the lever I, which operates the colter F, thereby making the operation of reversing the hook, adjusting the colter, and fastening both the mold-board and colter in their respective positions by one and the same hook and at one operation, as set forth.

3. The reversible chain clevis O, for the purpose of producing reversible side draft, when constructed and operated in the manner substantially as described.

**23,023. JOHN M. HALL**, Warrenton, Ga. Side-Hill Plows. Feb. 22, 1859.

Claim. The arrangement of the adjustable colter-bar C, point f', holes f, shoe F, mold-board E, adjustable screw-bolt D, attachment Z, pin g, key h, bolts j, and slot in beam A, operating as described, and for the purposes set forth.

**23,964. EDWARD VAN CAMP**, Readington, N. J. Hillside Plows. May 10, 1859.

Claim. Making the share, the landside, and the landside brace of hillside plows, each in one piece, and uniting them together to the mold board and beam, in the manner and for the purpose set forth, thus making a cheap, strong, and efficient plow for hillside plowing.

**25,436. WILLIAM O'NEILL**, Pine Level, Ala. Plows. Sep. 13, 1859.

Claim. The lapping landsides of the plows and the bar A, attached to the beam as specified, in combination with the bolts, nuts, and braces described, whereby they may be formed at pleasure into a double or hill-side plow, as set forth.

**25,816. DAVID ELDRID**, Monmouth, Ill. Plows. Oct. 18, 1859.

Claim. The arrangement, for joint operation, of the share frames B B, axle H, and colter L, as and for the purpose set forth.

**29,567. LYMAN D. BURCH**, Sherburn, N. Y. Plows. Aug. 14, 1860.

Claim. The combination and arrangement of arms D, rods E, slotted cross head F, clevis H, cord I, or its equivalent, substantially as set forth, for the purpose shown and described.

**29,708. GEORGE C. MILLER and RICHARD HENRY**, Cincinnati, Ohio. Hillside Plows. Aug. 21, 1860.

Claim. 1. The described combination of

the reversible share and mold board E when formed entire of steel or wrought iron, and the separate cast swivel F, the said parts being constructed, arranged, and connected, in the manner and for the purposes set forth.

2. The combination of the segmental bracket H, slot i, clamp screw G, and mold board E, when constructed, arranged, and operating in the manner and for the purposes set forth.

**30,726. R. H. EWING**, Clives, Ohio. Hillside Plows. Nov. 27, 1860.

Claim. In a hillside plow, with two mold boards F F<sup>1</sup>, the manner of securing and of operating the mold boards, viz: by means of horizontal arms g g, catch t, and groove in point k, together with the rods v, or their equivalents, all arranged and operating substantially as and for the purposes set forth.

**31,654. L. D. BURCH**, Sherburn, N. Y. Plows. Mar. 12, 1861.

Claim. The perforated colter A, nearly balanced on its axis of oscillation, braced and supported at its upper end, so constructed and arranged as that it may be adjusted vertically and laterally by an attendant, and at the same time oscillate sufficiently to allow stone or other obstructions to pass freely between the point of the plow and the lower extremity of the colter, substantially in the manner and for the purposes set forth.

**32,587. AUGUSTUS SANBORN**, Glover, Vt. Hillside Plows. June 18, 1861.

Claim. 1. The combination and arrangement of the auxiliary mold-board or wing B with the hillside plow or its reversible mold-board A, and to operate therewith substantially as specified.

2. The combination and arrangement of the bent arm d with the wing B, and the reversible mold-board, the said arm being to enable a person to move the wing under circumstances and by means as described.

**33,573. RICHARDSON CODDINGTON**, Leonidas, and DOUGAL Mc CALL, Kalamazoo, Mich. Plows. Oct. 29, 1861.

Claim. The combination of the parts as follows: A, beam and handles; B, standard bolt; C C, cutters; D D, right and left mold boards; E E, reversible shares; F, fastener; G, frame work, and H H, false land sides, when arranged and constructed substantially as and for the purpose described.

**35,432. C. F. BARAGER**, Candor, N. Y. Reversible Plows. June 3, 1862.

Claim. The combination of the movable or swinging section of mold board I, spindle J, gear wheels K L, and pivoted beam E, with the fixed sections of mold board H H', when arranged to operate in the manner and for the purpose set forth.

**36,999. WILLIAM JONES**, Wilson, Minn. Plows. Nov. 25, 1862.

Claim. The combination of the mold boards C C, shares F F, land sides D D, and standards E E G, with the plate H, guide plate J, lever K, and beam A, all in the manner herein shown and described.

**39,411. CHARLES M. LUFKIN,** Acworth, N. H. Plows. Aug. 4, 1863.

Claim. 1. A colter I, connected by a lever H and slide bar K to the mold-board F, in such a manner as to admit of the movement of the colter from one side of the beam A to the other by the adjustment of the mold-board, as herein set forth.

2. The curved arm f on the colter I, in connection with the pin g in the socket J, and the slide i and spring j, all arranged to operate as and for the purpose specified.

**45,882. NATHAN VARS,** New Market, N. J. Side-Hill Plows. Jan. 10, 1865.

Claim. The employment or use in a side-hill plow of a subsoil share G, having its standard F attached to an adjustable or swinging arm G\*, arranged substantially as shown, to admit of the subsoil share being adjusted to either side of the plow-beam, to suit the position of the mold board C and share D, as set forth.

**45,929. ELIJAH McKESSON,** Philips' Mills, Penn. Side-Hill Plows. Jan. 17, 1865.

Claim. 1. The double mold-board having a triangular front, corners to lock in the groove of the land-side, and a pointed projecting termination, constructed, arranged, and operating substantially as and for the purposes set forth.

2. The combination of the shoes 1 and 2, with the mold board and landside and share, when constructed, arranged, and operating substantially as described.

**46,716. HANNIBAL B. SMITH,** Springfield, Mass. Side-Hill Plows. Mar. 7, 1865.

Claim. The combination of the mold board D with the share B, flange beam A, spring catch c, and lip d, or their equivalents, operating substantially as described.

**50,749. CHESTER W. SYKES,** Sufield, Conn. Plows. Oct. 31, 1865.

Claim. 1. In combination with the other parts of a plow, a mold-board hung on the top of the share in such a manner, that it may be moved from side to side and fastened, substantially in the manner and for the purpose described.

2. The peculiar form of the mold-board, substantially as herein set forth.

**54,756. JOHN MOTT,** Danville, Cal. Plows. May 15, 1866.

Claim. 1. As a new invention, the use of a double plow revolving upon a horizontal axis L, the two plows being placed one over the other in an inverted position, substantially as described and for the purpose set forth.

2. The clasps M and N, for hinging the main rod L to the standards C and I, and the adjustment with washers (or their equivalent) of the clasps N, for turning the plow more or less to land, substantially as described.

3. The set-screws s and s', placed in the upper end of the standard of the plows for steadyng them and keeping off the land-side from the standard J', substantially as described.

**55,684. C. M. LUFKIN,** Claremont, N. H. Plows. June 19, 1866,

Claim. 1. A cutter I, of any convenient form, operated and connected by an eccentric M, shaft N, tube H, and slide-rod K, to the mold-board F, in such a manner as to admit of the oscillation of the cutter by the adjustment of the mold-board, as herein set forth.

2. A tube H, slide-rod K, latch L, spring e, and catches g g, operating and arranged substantially as and for the purpose herein set forth.

3. The pivot f, on the cutter I, in connection with the eccentric M and socket J, all constructed, arranged, and operating substantially as and for the purpose specified.

**56,798. BENJAMIN PRICE,** Leesville, Ohio. Plows. July 31, 1866.

The handles and beam are shiftable and either the right or left-hand plow may be brought into operation in hillside plowing.

Claim. The jointed beam A A' attached to a front and rear mold-board and points or hill-side plow, constructed and operating substantially in the manner and for the purposes set forth.

**56,171. JOHN MOTT,** Danville, Cal. Double Revolving Plows. Aug. 14, 1866.

Claim. 1. The peculiar depressions in the front and back standards a a b b, and extension of the arms d d, of the front standard conforming to the mold boards, and the forked brace e, for strengthening the plows as described.

2. The forked washer f, and adjustable washers m m, and lever e e, and the peculiar shape of the outer ends of the set screw l l, substantially as described and for the purposes set forth.

**57,796. GEORGE W. THOMPSON,** Ripley, Ohio. Plows. Sep. 4, 1866.

Claim. 1. The attaching of the mold boards F\* F\* to the standard E by means of the universal joint composed of the swivel bolt a and hinge or joint b, substantially in the manner as and for the purpose set forth.

2. The brace F' applied to the beam A and land side F, substantially as and for the purpose specified.

3. The combination of the land side F, standard E, and the mold boards F\* F\* attached to the standard by the universal joint, substantially as and for the purpose set forth.

4. The fastenings composed of the pivoted

bars G G attached to the beam A, substantially as and for the purpose specified.

**60,820. FREDERICK G. BAKES,** Nevay, Ind. Hillside Plows. Jan. 1, 1867.

Claim. 1. The provision in a hillside plow of right and left wings, or mold-boards G G', adapted to be alternately secured in the active and inactive positions substantially set forth.

2. In the described combination with the reversible share F, and wings G G', the latch K, lips P, lugs L L', M M', eye N, and hook O, or their mechanical equivalents, for the purpose explained.

3. The arrangement of the duplicated wings G G', pivoted near their front ends to the sheath, and secured alternately to their upper or inactive positions by the hook Q, and the eye R, or their equivalents.

**61,796. JAMES C. BETHEA,** Blakely, Ga. Side-Hill Plows. Feb. 5, 1867.

Claim. 1. The standard A, with flanges at the front and rear edges, adapted for the attachment of a right or a left share, substantially as described.

2. In combination with the standard A, the reversible landside, constructed and applied substantially as described and represented.

**3,094. JAMES C. BETHEA,** Blakely, Ga. Plows. Patented Feb. 5, 1867, No. 61,796. Reissued Aug. 25, 1868.

Claim. 1. The post A, having in combination the front flange F and projection B, or any equivalent of this projection, which sustains, in front of the vertical part of the post next below it, the holding-down mechanism of the beam.

2. Making the connection of the plow-beam to the post A, having the front flange F, by the stirrup D and wedge E, or equivalents of these two parts, the stirrup of which surrounds the beam and a portion of the metal below it, and has directly in rear of the lower end a portion of the post.

3. The post A, having the front flange F and projection B, or any equivalent of this projection, which, together with the beam, is surrounded by the stirrup D and drawn together by the wedge E, or equivalents of this stirrup and wedge, which hold the beam to the post, as these parts do, without weakening either one.

4. The post A, having the front flange F and the front and rear projections B B, or any equivalent of the front projection, which, together with the beam, is surrounded by the stirrup D and drawn together by the wedge E, or equivalents of this stirrup and wedge, which hold the beam to the post in front, while the beam is so held to the rear flange as to prevent the parallelism of the landside of the beam and post being varied.

5. The combination of the post A, having the front flange F and projection B, and the stirrup D, wedge E, and landside G, with its

cutting-edge, or an equivalent combination of parts.

6. The post A, having the front and rear flanges F F and projections B B, and the beam C, connected to the projections with the stirrups D D and the wedges E E, or equivalents of these parts, for changing the plow from a right to a left-hand turning one.

7. The combination of the reversible landside G with the post A, having the flanges F F.

**66,012. PETER H. FLANSBURGH,** Eden Township, Cal. Side-Hill Plows. June 25, 1867.

Claim. 1. The two plows C C<sup>1</sup>, placed side by side and operating independent of each other, either by a hinge or rack and pinion, substantially as herein described.

2. The levers H and H' with the toothed segments G and G', operating the plows by means of the independent vertical racks E E', substantially as and for the purpose described.

**67,002. JOHANN TIETZ,** Baltimore, Md. Plows. July 32, 1867.

Claim. 1. The forked plow standard C, as and for the purpose described.

2. The reversible mold-board F, in combination with the standard C and braces D D, substantially as and for the purpose specified.

3. The adjustable clevis N, substantially as and for the purpose described.

**67,890. W. E. LEVOY,** Cincinnati, Ohio. Plows. Aug. 20, 1867.

Claim. 1. The mode of adjusting the land of the plow, substantially as set forth and described.

2. The peculiar form and curves of the mold-board B, substantially as set forth and described.

3. The particular form and construction of the upright or sheath G with the brace I, the socket T, and the draft rod J, in connection with the adjustable bar K K', with the nut L and pin O, as set forth and described.

4. Adjusting the angle of the plow to any required slope of ground or to level land, by means of the adjusted shackle bar H, or its equivalent, substantially as set forth and described.

**68,190. RICHARD HARDENBROOK,** Bath, N. Y. Side-Hill Plows. Aug. 27, 1867.

Claim. 1. The clevis H, provided with the elongated slot h, perforated arms or fork h h', and lip e, when connected to the notched beam A by means of the single pivotal bolt, substantially as and for the purpose described.

2. The curved form of the slot h, or the equivalent thereof, whereby a forward inclination is given to the draft-bearing surface of the clevis from the center to the ends thereof, substantially as described.

3. The flanged extension or tail piece A' formed on the beam A, as a means of attachment of the handles B B, as described.

**69,874. FRANKLIN WATSON**, Harrison, Ill. Plows. Oct. 15, 1867.

Claim. 1. The mold-board F, of the shape described, and share M, when combined as set forth.

2. The springs h and i, when combined and operated as described.

3. The plow foot D, mold board F, share M, support G, standard E, and springs h and i, when combined and arranged substantially as described.

**71,513. ELBRIDGE G. MATTHEWS**, South Natick, Mass., assignor to Frank F. Holbrook, Boston, Mass. Plows. Nov. 26, 1867.

Claim. 1. The arrangement of the arm A, its flanges and shelf c, or their equivalents, with the plow standards S, and its base a, as described.

2. The arrangement of the tooth f and the buttress g with the plow standard and its shoe, as set forth.

3. The plow standard as made with an arm to extend back and up from its base, so as to give support to the two handles and the beam, substantially as set forth.

**73,685. ALEXANDER WRIGHT**, Alleghany City, Pa. Plows. Jan. 21, 1868.

The mold-board and share of the hillside plow turn over above, and are secured by a sliding rod in reach of the operator.

Claim. A plow constructed, arranged, and operating substantially as herein described, and for the purpose set forth.

**73,933. HIRAM SLOOP**, Mount Healthy, Ohio, assignor to himself and Jeptha Garrard, Cincinnati, Ohio. Hill-Side Plows. Jan. 28, 1868.

Claim. A reversible hill-side plow, characterized by two plows proper, secured back to back, and provided with a beam capable of being swung and locked in diametrically opposite directions, dogs f J, abutment bar H, sheaths E E', lever M, and rack N, or their equivalents.

**75,104. HENRY B. ABBOTT**, Felicity, Ohio. Hill-side Plows. Mar. 3, 1868.

Claim. The combination, with the two bar shares E E', connecting sheath G, and double mold-board F, of the connecting bar I, bracket C, and locking bolt J, the latter being shifted from one set of staples to another on the opposite side of the plow beam, as and for the purpose explained.

**77,630. DAVID A. MANUAL**, Napa City, Cal. Side-Hill Plows. May 5, 1868.

Claim. 1. Dividing the plow, between the share and mold-board F and J, and hinging the two parts to the landside and standards, so that by swinging them to the right or left, and joining the two said parts, they will form a perfect plow, substantially as described.

2. Construction of the landside A, wider in front than at the heel, so that the line of

draught will incline towards the land, substantially as described.

**78,492. C. PH. STEINMETZ**, Madison, Wis. Plows. June 2, 1868.

Claim. 1. The swivel clevis a, as constructed, arranged, and fully described and shown.

2. The combination of the reversible plow-share A or cultivator share E, with the vibrating upright shaft B, lever D, and stop C, as shown and described.

3. The swivel clevis a, reversible plowshare A or cultivator share E, vibrating shaft B, lever D, stop C, notched bar or standard e, with wheel G, key f, and plates F, all constructed and arranged in combination with a plow frame, as shown and described.

**85,696. LOUIS RONAT**, Carondelet, Mo. Plows. Jan. 5, 1869.

Claim. 1. The turning plow-beam A, in combination with the cross-beam B, and plows H H', and frame I, substantially as set forth.

2. The stop I, mortise z' and detents L, in combination with the rod N, rods n and n', segment O, and handles Q, substantially as and for the purposes set forth.

**85,746. DAVID A. MANUEL**, Napa City, Cal. Plows. Jan. 12, 1869.

Claim. 1. The land side D, when provided with the vertical projection I' the pivot e, the slot s s', and the wedge shaped extremity, all arranged and constructed in a simple piece of cast-metal, substantially as described, and for the purposes set forth.

2. The mold-board A, when constructed in the shape described and shown, pivoted at its middle, to the rear edge of the landside by an arm C, operating as described, and provided with the flanges i i', arranged under the landside edge at the ends, all constructed and operating in combination with the landside above described, substantially as and for the purposes specified.

3. The combination of the landside and mold-board above described, with the lever E pivoted at e and connected with a sliding lock bolt, e' arranged inside of the land-side in a slot or chamber prepared for the purpose substantially as described, and for the purposes set forth.

**89,796. IVES SCOVILLE** and **HIRAM H. SCOVILLE**, Oakland, Cal. Side-Hill Plows. May 4, 1869.

Claim. 1. The angularly placed removable axes a a, arms b b and c c, for elevating and lowering the mold-boards, and holding their positions, substantially as described.

2. The lever C, hooks e e, rod g, and bar h, operating in the slotted standard E and slots i, the whole arranged substantially as and for the purpose described.

3. The two plows A and B, operating independently of each other, and turning up against opposite sides of the beam, and mounted on the angularly placed axes a a, substantially as described.

**90,895. WILLIAM HARLOW TYLER,** Conneautville, Pa. Plows. June 1, 1869.

Claim. 1. In combination with a beam and land-side, the separate and independent plow-points, shares, and mold boards, arranged to vibrate on horizontal axis or axes, substantially as described.

2. The sliding-bolt, arranged in or over the land-side, in combination with the braces which connect the vibrating points, shares, and mold boards to the land-side, substantially as described.

3. In combination with the vibrating mold-boards, and their appurtenances, the pronged lever Q, for vibrating and locking the mold-boards, substantially as described.

4. Making the revolving cutter or colter jagged or toothed, substantially as described.

5. The removable sub-colter W described.

**91,497. SETH G. TUFTS,** Maineville, Ohio. Reversible Cultivators. June 15, 1869.

Claim. 1. The provision, in a hand or other cultivator, of the double-ended sheath or standard C, substantially as and for the purpose designated.

2. In combination with the double-ended sheath, the reversible-handle E, substantially as set forth.

3. The cross-bar G, checks g, and bolt I, or their equivalents, in the described combination with the reversible handle E.

**94,001. JOHN W. JONES,** Thomson, Ill., assignor to himself and S. H. Beckwith, same place. Reversible Plows. Aug. 24, 1869.

Claim. 1. The mold-board formed in two triangular parts, B C, and combined together, and with the posts E D, and turning and supporting-frame I when all are arranged substantially as specified.

2. The combination of the two parts B C of the mold-board and the locking-slides O, when arranged and operating substantially as specified.

**97,828. ZOPHAR W. STURTEVANT,** Dunstable, Mass. Plows. Dec. 14, 1869.

Claim. 1. The shaft B and the beam A, constructed and combined as shown and described, for the purpose specified.

2. The combination, with the shaft B, and with the beam A, as described, of a supporting-frame, F F', and handles C, in the manner and for the purpose set forth.

3. The combination, with the shaft B, the beam A, frame F F', and handles C, as described, of the double and reversible plow L L, the parts of which are removable and changeable, and adapted for a double or single plow, or a right or left-hand plow, in the manner, by the means, and for the purposes substantially as specified.

4. The lever d<sup>3</sup>, in combination with the shaft B, and with the back brace K, or other connecting or holding device, for the purpose and substantially as described.

5. The rising-wheel D, and its frame, and guide-rods f, cross-head g<sup>3</sup> and screw E, in combination with the handle-supporter F F', and the shaft B, in the manner and for the purpose described.

6. The rising-wheel G, and rod k, having a standard or ears, m, and a pin c, with the lever H and cord o, in combination with the beam A and shaft B, in the manner and for the purpose substantially as described.

7. Combining a plow or plows, L L or N, with the shaft B and beam A, by box bearings l and c e, or caps 7 and 8, and a bail or curved braces S, as described.

8. Combining the lever d<sup>3</sup> with the shaft B, by means of a hub d<sup>2</sup>, and by screws or pivots, as described.

9. The combination, with the lever H, as shown and described, of the cord o, arranged within and through the shaft B, substantially as and for the purpose specified.

10. The handle-supporter F F', as described, and which serves as a guide and a support for the rods f, a stop for the screw E, and to connect the handles with the shaft B, as set forth.

11. The arrangement and combination of the wheels D and G, and their connecting and operating-mechanisms, with the beam A and the shaft B, whereby either or both ends may be raised successively or simultaneously, for the purpose and substantially as described.

**103,187. FREDERICK HOLBROOK,** Brattleborough, Vt., and **JAMES A. HOWE** and **JOEL NOURSE**, Boston, assignors to Joel Nurse, Boston, Mass. Swivel Plows. May 17, 1870.

Claim. 1. The convex mold-board, constructed substantially as described.

2. The projection L on the beam, for the purpose set forth.

3. The combination of the recess, the bolt E, and cutter, with the beam, for the purpose described.

4. Constructing the share and land-side to swivel plows, so that, when combined they shall operate to cut under the land-side, whether turning the furrow to the right or left, substantially as described, for the purposes set forth.

**8,551. FREDERICK HOLBROOK, J. A. HOWE and JOEL NOURSE,** Boston, Mass., assignors to Joel Nurse, same place. Swivel-Plows. Patent No. 103,187, May 17, 1870. Reissued Jan 21, 1879. Filed Dec. 20, 1878.

Claim. 1. The mold-board of a swivel-plow, forming a regular convex surface in the rear of a cross section near the front of the standard, the share being concave between the fins as it approaches the point, and the main body of the mold-board being formed on a series of straight lines, substantially as shown

and described, on both sides of the mold-board, in the directions in which the various portions of the furrow-slice pass.

2. The mold-board of a swivel-plow, formed convex at the rear, convex on a cross-section near the front of the standard, straight on a series of lines, substantially as shown and described, on both sides of the mold-board, terminating before reaching the extreme point of the share, and having the fins and points of the share raised above the plane of said lines, thereby forming a concave point.

3. The mold-board for swivel-plows, forming a regular convex surface in the rear of the fins of the share, and constructed on a series of straight lines, substantially as shown and described, running on both sides of the mold-board in the directions in which the portions of the furrow-slice pass in turning a furrow.

4. The mold-board of a swivel-plow, constructed to form straight lines from near the central portion of the share, diverging to each side of the mold-board to points near the rear lower corners of the same, substantially as shown.

5. The combination of the recess, the bolt E, and cutter with the beam, for the purpose described.

6. The share and land-side in swivel-plows, constructed substantially as described, so that when in operation the land-side shall stand on an incline, cutting under the unplowed land in turning a furrow either to the right or left, combined and arranged substantially as described, for the purpose set forth.

**103,777. WILLIAM SMITH RABB,**  
Winnsborough, S. C. Plows. May 31, 1870.  
Antedated May 19, 1870.

Claim. 1. The combination of the slotted beam A, two standards B, pivoted bar F, roller E, and handles C, with each other, substantially as herein shown and described and for the purpose set forth.

2. The combination of the spring catch G, and hook H, with the beam A, handles C, pivoted bar F, and standards B, substantially as herein shown and described and for the purpose set forth.

**108,907. EPHRAIM C. HODGE,** Oneonta, N. Y. Reversible Plows. Nov. 1, 1870.

Claim. 1. A reversible plow, in which the bottom edge of the land-side or its shoe is at a depressed angle with the pivotal line on which the mold-board turns, for operation essentially as described.

2. The catch F, pivoted at the rear end of the beam and extending rearwardly between the handles, with its forward end constructed and to secure the mold-board on either side of the beam for operation substantially as set forth.

3. The double landside consisting of two plates  $\alpha\alpha$ , formed at their lower edges to serve as a substitute for the ordinary shoe, in com-

bination with a reversible plow, as shown and described.

**108,919. ELBRIDGE G. MATTHEWS,** Oakham, Mass., assignor to Franklin F. Holbrook, same place. Swivel Plows. Nov. 1, 1870.

Claim. The combination with the swiveled mold-board B, and point or share E, of the wings F F, substantially as and for the purposes set forth.

**110,692. GEORGE W. THOMPSON,** Ripley, Ohio. Reversible Plows. July 3, 1871.

Claim. 1. A double reversible mold-board combined with a brace E, constructed and arranged as and for the purpose described.

2. The combination with the mold-board and beam of a reversible plow of the support D bent at I, toward the land-side and from the colter, to prevent clogging, as described.

**4,925. GEORGE W. THOMSON,** Ripley, assignor of two thirds interest to N. Hawk and J. W. Atwood, Manchester, Ohio. Plows. Patent No. 110,692. Jan. 3, 1871. Reissued May 26, 1872.

Claim. 1. The double mold-board, composed substantially of right and left hand plowshares, united to an inclined revolving standard, D, as and for the purposes set forth.

2. The combination of inclined standard D, plowshares A B fastened thereto, and brace E, substantially as set forth.

3. In combination with the mold-board and beam of a reversible plow, the standard D bent as at I, toward the land-side and from the colter to prevent clogging, substantially as described.

**111,247. JACKSON P. PRITCHARD,** Conn Valley, Cal. Plows. Jan. 24, 1871. Antedated Jan. 14, 1871.

Claim. In combination with the plows D, and D' connected and arranged as above claimed the holding device, consisting of the spring J, and cross piece e operated by the lever K, substantially as specified.

**112,039. EPHRAIM C. HODGE,** Oneonta, N. Y. Plow Colters. Feb. 21, 1871.

Claim. The colter D in combination with yoke B, stops E E slide rods C C, and beam A whereby the colter may be used on either side of the beam and adjusted at the will of the operator, as and for the purpose set forth.

**116,070. GEORGE W. LEONARD,** Middle Valley, Pa. Side-Hill Plows. June 20, 1871.

Claim. The combination of the pivoted adjustable plate B with the double mold-board of a swivel or side-hill plow, substantially as herein shown and described, and for the purpose set forth.

**116,314. EDWIN JENNINGS,** Candor, N. Y. Reversible Plows. June 27, 1871.

Claim. The cross-head bolts F and G, either or both, in combination with the beam A and perforated arms  $c^1$  of the standard-frame C, substantially as herein shown and described, and for the purpose set forth.

**117,054. DANIEL C. DAY,** San Jose, Cal. Side-Hill Plows. July 18, 1871. Antedated July 12, 1871.

Claim. The combination, with the revolving plate E, of the band F, rod Q, pin I, rod b, and lever H, connected and arranged to operate together, substantially as and for the purpose herein set forth.

**118,049. CHARLES B. PETTENGILL,** Hebron, Me. Side-Hill Plows. Aug. 15, 1871.

Claim. 1. In combination with two hinged wings G G, attached to a reversible mold-board, the jointed rod passing behind the mold-board, the effect being to compel each wing to move inward as the other moves outward.

2. In combination with hinged wings, G G, on the mold-board, the pivoted catch K curved on its outer surface, the effect being to move out and support the wings.

3. The combination of a mold-board, E, having projection Q, and a pair of wings, G G, all constructed and arranged as described, the effect being to enable the same plow to work on level ground as well as on a hill side.

4. The rod M, toothed bar N, pinion O, and lever P combined with a catch K K', to operate it in the manner and for the purpose described.

**118,932. JOAB HAPGOOD,** Shrewsbury, Mass. Plows. Sep. 12, 1871.

Claim. 1. The combination of the mold-board C and rear supporting-arm F, with the bed B provided with journals or pivots G I, arranged in relation to each other, bed B, and mold-board C, substantially as shown and described.

2. The combination of the mold-board C provided with notches m with the bed B and supporting-standard E, substantially as and for the purposes set forth.

**119,423. WILLIAM W. SPEER,** Alleghany City, Pa. Combined Subsoils, Drills, and Side-Hill Plows. Sep. 26, 1871.

Claim. The perpendicularly-sided and triangular mold-board G, pivoted at the vertex of its angle to the bolt I of subsoil-plow irons C D E, and adjustable on the arc-bar J to enable the plow to be adapted to the uses specified.

**120,572. LUKE CHAPMAN,** Collinsville, Conn., assignor to himself and The Collins Company, same place. Gang-Plows. Nov. 7, 1871.

Claim. 1. The beam  $a$ , made reversible, and provided with sets of plows both before and behind the point of suspension, substantially as described.

2. The reversible beam  $a$  combined with the swivel  $b$ , sliding block  $p^1$ , and standard  $d$ , and made rotary by means of the worm-gear  $c$  and worm  $c^1$ , substantially as described.

3. The parts as claimed in the immediately preceding clause, combined with the lifting-jack described, substantially as described.

4. The standard  $d$  having a reversible beam  $a$  hung therein, and oscillatory sidewise upon the main axle  $g$  by means of the bed-plate  $f$  pivoted to the axle-plate  $f^1$ , and the worm  $f^1$  and worm-teeth  $f^2$ , substantially as described.

5. In combination with a reversible plow-beam  $a$ , the gauge-wheel  $m$ , attached adjustable thereto, substantially as described.

6. A plow-beam  $a$ , made reversible by mechanism substantially as described, made adjustable vertically and sidewise by mechanism substantially as described, and the whole hung on a main axle,  $g$ , permanently sunk below the level of the centers of the supporting-wheels, substantially as described.

**121,582. JOHN BUTLER,** Huff Township, Ind. Plows. Dec. 5, 1871.

Claim. The combination of the standard  $d$ , the plate G, the reversible plate C, the plows F F' and H, and the beam A, constructed substantially as described, for the purposes set forth.

**123,272. ELBRIDGE G. MATTHEWS,** Oakham, assignor to Franklin F. Holbrook and Thomas B. Everett, Boston, Mass. Plows. June 30, 1872.

Claim. 1. The frog E, provided with the curved share-supporting edges or lips  $d$  d, substantially as described, and for the purpose set forth.

2. The combination, with the plow-beam A and circular or rotary cutter G, of a laterally-adjustable frame or supporting-standard M M', substantially as and for the purposes set forth.

3. The combination, with the laterally-adjustable supporting-standard M M' and rotary sward-cutter G, of the vertically-adjustable bearing pieces N and holding-screws or bolts m, substantially as and for the purposes set forth.

4. The combination, with the laterally and vertically adjustable cutter-supporting frame M M' P and plow-beam A, of the hand-lever O, for adjusting the cutter from the rear of the plow, substantially as shown and described.

**123,330. LUKE CHAPMAN,** Collinsville, Conn., assignor to himself and The Collins Company, same place. Plows. Feb. 6, 1872.

Claim. 1. The frame  $d$   $d^1$   $d^2$ , provided with the journals rigidly attached thereto, in combination with the rotary plow-beam  $a$ , provided with the right and left plows  $b$  c, substantially as described.

2. The rotating standard  $e^1$ , provided with wheel or crank and handle  $e^2$   $e^3$ , arranged to be operated by the driver, in combination with the bearing  $f$  and rotating plow-beam  $a$ , substantially as and for the purpose set forth.

**126,865. BENJAMIN F. BAKER,**  
Ballston Spa, N. Y. Plows. May 21, 1872.

Claim. 1. A plow having the mold-board hinged to the side of the standard or landside, so that it can be tipped backward and forward, in the manner and for the purpose substantially as set forth.

2. The doubled-pointed reversible mold-board D, constructed and operated in the manner substantially as and for the purpose set forth.

3. The movable brace E, or its equivalent, for supporting the hinged mold-board, in manner substantially as set forth.

4. The combination of the landside or standard A, hinged mold-board D, and knuckle-jointed braces E, when constructed as described, and operated in the manner and for the purposes substantially as set forth.

5. The pivot-disks H I and adjusting-plates K, operating in combination with the locking-bolt L, or equivalent device for the purpose of adjusting and securing the plow-beam, in the manner substantially as set forth.

**126,952. JOHN S. HALL,** Pittsburgh, Pa. Plows. May 21, 1872.

Claim. 1. The point A, angular base B, standard and brace C D, and V-shaped or double mold-board G, constructed and arranged, in connection with each other, substantially as herein shown and described, and for the purpose set forth.

2. The flange or plate F and bar I, constructed and arranged, in connection with the angular base B, V-shaped or double mold-board G, and brace D d', substantially as herein shown and described, and for the purpose set forth.

3. The weighted lever-latches J, in combination with the bar I, and shoulder d' formed upon the brace-bar D, substantially as herein shown and described, and for the purpose set forth.

**127,372. AUGUSTUS SANDBORN,**  
St. Johnsbury, Vt. Plows. May 28, 1872.

Claim. The combination of the wedge-shaped foot b with the share and cutter, as and for the purpose described.

**129,054. FRANCIS POINDEXTER,**  
Franklin, N. C. Plows. July 16, 1872.

A cross standard to which reversible mold-boards are attached, the standard being pivoted to the rear of the plow-beam by a single pivot, allowing it to swing so that either the right or left hand mold-board can be used.

Claim. The intersecting plow-standards F, in combination with the pivoting-bolt E and rear end of the plow-beam A, substantially as herein shown and described, and for the purpose set forth.

**130,882. HENRY H. SWEETLAND,**  
Centreton, Ohio. Plows. Aug. 27, 1872.

Claim. 1. The combination of the reversi-

ble plow A, beam M, and the operating mechanism, substantially as described.

2. The beam B, disks G, lock D, and lever J, when combined to form a lock for holding the plows in position, substantially as set forth.

3. The beam M extending forward over the axles and under the tongue, in combination with the draft-rod P and adjusting-rod o, substantially as specified.

4. The axles B, lever J, disks G, beam M, lock D, and reversible plow A, when all are combined as set forth.

**131,679. HENRY B. HAKES,** Worcester, Mass. Plows. Sep. 24, 1872.

Claim. 1. The combination, with the beam, mold-board, and point, in a swivel-plow, of a bed C, tapered from front to rear, substantially as and for the purposes set forth.

2. The mold-board D having the forward convexity at f, the rapidly-receding curved sides h h hollowed out at i, and the outwardly-curved flukes k k, substantially as shown and described, and for the purpose set forth.

**133,517. THOMAS J. BURGESS,**  
Kingston, N. Y. Plows. Dec. 3, 1872.

Claim. The arrangement of the reversible bar C, the loop E, the rod F, and the stud e provided on the handle G, all arranged with reference to each other and to the beam B, substantially as and for the purpose specified.

**133,631. WILLIAM H. CONAWAY,**  
Dillsborough, Ind. Plows. Dec. 3, 1872.

Claim. The extension-wings a a', hinged directly to the mold-boards of the shares A A', and supported by the combined rest and brace c and stop K, constructed and arranged substantially as described, for the purpose set forth.

**141,222. GEORGE W. HOWE,** Vineland, N. J. Reversible Plows. July 29, 1873.

Filed Apr. 17, 1873.

Claim. The pivoted double-edged colter, provided with drum, chain, and slide-bar, working by lever, substantially as and for the purpose described.

**144,308. AUGUST ANSCHUTZ,**  
**ANTON SEIDEL,** and **MICHAEL WEBER,** Livingston County Mo. Plows. Nov. 4, 1873. Filed July 21, 1873.

Claim. 1. The foot F, provided with the fender R and shield H, for the uses and purposes specified.

2. The foot F, provided with the fender R and socket or journal F', in combination with revolving standard I, lever L, and ratchet E, substantially as shown and described.

**144,760. JOHN S. HALL,** Pittsburgh, Pa. Plows. Nov. 18, 1873. Filed June 20, 1873.

Claim. The branches A<sup>1</sup> A<sup>2</sup> of the beam and the sole F, constructed and combined with the nut-screw and slotted wedge in the manner and for the purpose specified.

**148,877. JOHN P. DEXHEIMER,** Lawrenceburg, Ind. Reversible Plows. Mar. 24, 1874. Filed Sep. 20, 1873.

The plow turns on a vertical pivot extending up through a circular disk and the beam. The standard has a cross-bar bearing upon the disk to resist the strain upon the plow. The extension mold-board turns as the plow revolves, so as to complete a perfect plow from either point. The supports for the pivot of the mold-board are adjustable, so that the plow may be more or less spread.

Claim. The adjustable support W X for the extension mold-board, substantially as specified.

**151,617. WALTER W. PARSONS,** Derby Line, Vt. Wheel-Plows. June 2, 1874. Filed Feb. 14, 1874.

Claim. 1. The beam E, rocking bar C, pivoted bars B, chain *a*, axle A', connecting-chain *a'*, and angular-lifting-lever *b*, which is connected to a hand-lever, all combined substantially as described.

2. The reversible plow, in combination with the beam E, slotted lever J, rods *k* *k'*, and angular lever *k'*, as and for the purpose set forth.

**151,776. JULIUS HARTMANN,** Jefferson, County, Ky. Plows. June 9, 1874. Filed Oct. 14, 1873.

A crank-shaft forms a seat for the share, and to the shaft the wings are hinged. By turning the lever and shaft to the extreme left a right-hand-turn plow is formed, and a left-hand plow by turning the other way, one wing taking the position of a mold-board and the other of a land-side. When adjusted in the center the wings stand at equal angles, forming a shovel-plow.

Claim. The combination of the share *a*, the mold-board or wings, the cranked and journaled shaft A, and an adjusting device, said wings being hinged to the shaft and connected to the standard by the pivoted links E, all substantially as shown and described.

**152,886. W. WARLICK,** Ellijay, assignor of one-half to J. Spilman, Marietta, Ga. Plows. July 7, 1874. Filed Apr. 25, 1874.

Claim. In a reversible plow, the standard A, having reverse shoes *a* *a'*, constructed and described, and adapted to carry a surface-plow and a subsoil-plow, and provided with arms B, attached to a sub beam, C, substantially as and for the purposes set forth.

**154,470. C. E. FULK and J. J. GOOD,** Cynthiana, Ky., said Fulk assignor to said Good. Plows. Aug. 25, 1874. Filed June 1, 1874.

Claim. 1. The pivoted standard B, carrying the plow-shares, in combination with the front braces *d* *d'* secured to the said standard and plow-beam, as specified, to admit of the pivotal movement of the standard, and the slid-

ing plate *f*, substantially as and for the purposes set forth.

2. The combination of the beam A, standard B, and braces *d* *d'*, with the yoke D, to adapt the reversible plow for use as a ditcher, or as a double plow, substantially as herein set forth.

**156,123. FRANSIS BIEKER,** Mount Vernon, Ind. Plows. Oct. 20, 1874. Filed June 5, 1874.

Claim. 1. In combination with the rotating beam A, with its two mold-boards, plow-points, and landsides, the two separately-adjustable colters F F, the double clamp G, and set-screws *i* *j*, substantially as set forth.

2. The combination of the reversible beam A and axle K of the carriage with the twisted loop J' and chain J, as and for the purposes set forth.

3. In combination with the rotating beam A, its two mold-boards, points, and landsides of the handle H hinged to the beam, the brace *j'* hinged to the beam, and the T-shaped catch I pivoted to the handle, all as set forth.

**157,130. L. L. IVERSON,** Decorah, Iowa. Side-Hill Plows. Nov. 24, 1874. Filed Aug. 25, 1874.

In reversing the plow a spring-block on the rear end of the beam receives the point, and holds it in a recess. A cross-loop assists it in resisting the strain.

Claim. 1. The spring stay-block *d*, combined with the reversible double plow, substantially as described.

2. The loop *g*, combined with the reversible double plow, substantially as described.

**157,200. MINOT ELLIS,** Greenfield, Mass. Side-Hill Plows. Nov. 24, 1874. Filed Sep. 12, 1874.

Claim. 1. The casting C, formed substantially as shown, and for the purposes described.

2. In a side-hill plow, the point K, having the mold-board support L, and revolving beneath the landside, in combination with the mold-boards E E, revolving above landside through the opening D in plate C, substantially as shown and described.

**157,539. THOS. PARKER,** Menomonee, Wis., assignor of one-half his right to James Downing, same place. Plows. Dec. 8, 1874. Filed Oct. 24, 1874.

Claim. 1. In a reversible plow, the curved beam A, having the horizontal rear extension *a'*, in combination with the two plows, revolving on the horizontal part *a*, the upper plow reaching to the curve of said beam, and secured by the loops *n* *r*, substantially as specified.

2. The catching-loops *n* *r*, loaded arm *n'*, rods J and *p*, and angular lever *m*, in combination with the two reversible plows, as described.

**159,338. THOMAS S. MACOMBER,** Hamilton, N. Y. Plows. Feb. 2, 1875. Filed Dec. 28, 1874.

Claim. The combination of the eyes F and their pivot, the bent bar G, and its pivot eyes

H, the double hook J, the eyes or sockets I, the rod K, and lever L, with the two mold-boards and shares D E, and the landside A, substantially as herein shown and described.

**160,625. C. H. STRATTON,** Monroeton Pa. Side-Hill Plows. Mar. 9, 1875. Filed Dec. 19, 1874.

Claim. In hillside plows, a mold-board, made in two longitudinal reversely-tapered sections E F, as shown, the former turning under and the latter over the landside, as and for the purpose specified.

**163,589. JOAB HAPGOOD,** Shrewsbury, Mass. Swivel-Plows. May 25, 1874. Filed Oct. 27, 1873.

The colter is attached to the front end of a lever pivoted to the under side of the beam, and is automatically moved to be in line with the landside when turned on either side.

Claim. The combination, with the beam A, mold-board E, and standard B of the levers F and I, pivoted at  $\alpha$   $\beta$ , supporting-loop K, and cutter-blade G, said parts being constructed and arranged for operation substantially as herein set forth.

**165,014. J. McCABE,** Woodbury, Tenn. Reversible Plows. June 1, 1875. Filed Apr. 14, 1875.

Claim. The combination of the cross-beam B, journaled to the bolt  $\delta$ , extending longitudinally through the bent portion of the main beam A, and the projections L' L', adapted to engage over the projection M of the plate M', attached to the main beam A, for the purpose of receiving the strain upon the plowshare, substantially as described.

**167,402. R. I. KNAPP,** Half-Moon Bay, Cal. Side-Hill Plows. Sep. 7, 1875. Filed Aug. 13, 1874.

Claim. In a side-hill plow, constructed as described, the anchor J, provided with the rod K and handle M, all arranged to operate substantially as and for the purpose set forth.

**168,157. MYRON R. HUBBELL,** Wollcott, Vt. Reversible Plows. Sep. 28, 1875. Filed Aug. 21, 1875.

Claim. The combination of the draft-rod G, running lengthwise with, and swiveled to, the beam A, with the hooked rod F and the slotted tube E, connected to the reversible mold-board D, the rod G connecting at its forward end with the draft-hook H or a clevis, substantially as herein shown and described.

**169,678. FREEMON CULVER and JEFFERSON H. CULVER,** West Oneonta, N. Y. Colters. Nov. 9, 1875. Filed Sep. 4, 1875.

Claim. 1. In a reversible or hill-side plow, the colter C, having shank g and collar h, and adapted to be rotated axially, or vibrated vertically, and to be locked with its curved surface toward the mold-board side, substantially as specified.

2. The colter C, having a double-edged blade f, which is on one face a plane and on the other a convex surface, and having a prismatic shank, g, substantially as specified.

3. The beam A, having cylindrical aperture c, annular groove d, and longitudinal grooves i i, and the collar h, having a ball-and-socket movement in groove d, in combination with the shank g of the rotating colter, C, substantially as specified.

**172,928 JOHN NEFF, Jr.,** Pultney, N. Y. Side-Hill Plows. Feb. 1, 1876. Filed July 16, 1875.

Claim. 1. The standard A, having at the top the horizontal beam-plate a', provided with stops or projections  $\alpha$   $\alpha$ , and having the oblique rear extension A', as described and shown.

2. The plow-beam B, pivoted horizontally upon the standard-plate, and having the rear extension  $\beta^1$  and the lever-catch  $\beta^2$ , substantially as and for the purpose set forth.

3. The handles C, pivoted obliquely upon the rear extension A' of the standard, and pivoted lower down to the rear extension  $\beta^1$  of the beam, whereby the direction of the plow-beam may be changed by the handles and locked in position by the lever-catch, as shown and described.

4. The combination of the standard A, beam B, handles C, and lever-catch  $\beta^2$ , all constructed and arranged substantially as shown and described.

**176,729. S. H. WRISLEY,** Cambridge, N. Y. Side-Hill Plows. Apr. 25, 1876. Filed Mar. 4, 1876.

Claim. 1. A mold-board for a reversible plow, made concave its entire length, and provided with convex edges, substantially as herein set forth.

2. The combination of the colter I, pivoted block K with set-screw s and semi-circular projection t, and the pivoted lever L, all substantially as and for the purposes set forth.

**177,080. HENRY F. SHAW, and GEORGE F. SHAW,** Boston, Mass. Side-Hill Plows. May 9, 1876. Filed Dec. 24, 1875.

Claim. 1. In a reversible plow, the wings D D, pivoted at  $\epsilon$  to move in an incline plane, whereby in reversing the plow the forward wing may be brought upward and inward, and the rear wing downward and outward into working position, substantially as shown and described.

2. The combination of the beam C, pivoted at  $\beta$ , the wings D D, united as one piece, pivoted at  $\epsilon$ , and the plate f, with inclined plane, or its equivalent, whereby the wings are brought into position, all substantially as hereinbefore described.

3. The combination of the beam C, wings D D, and lock g, substantially as and for the purpose hereinbefore set forth.

**177,503. WILLIAM I. GOSSETT and JAMES P. STARK,** Liberty, Tenn. Plows. May 16, 1876. Filed Mar. 6, 1876.

Hinged mold-boards connected to the cross-arms of a lever, by which they are alternately turned vertically upon their edges in the position of a land-side.

Claim. The combination of the hinged mold-boards G and the pivoted lever H J with the standard B, the plow F, and the round E of the handles D, substantially as herein shown and described.

**177,955. THOMAS PARKER and JAS DOWNING,** Menomonee, Wis. Plows. May 30, 1876. Filed July 17, 1875.

The curved beam terminates upon the colter edge of the plow, and forms the upper part of its throat. A horizontal rear arm swivels the connected plows.

Claim. The curved beam A, terminating at its rear end in the horizontal bar B, and having the curved extension *a* in combination with the mold-board of the plow constructed as described, and for the purpose set forth.

**180,713. JULIUS HARTMAN,** Louisville, Ky., assignor of two-fifths his right to Anton Lauer, same place. Reversible Plows. Aug. 8, 1876. Filed Dec. 1, 1875.

Claim. The standard or frame B, having the landside L formed therewith, in combination with the reversible share or mold-board E F G, the reversing spindle and the share locking mechanism substantially as shown and described.

**183,162. BENJ. B. HAWSE,** Morrisville, Vt. Furrow Gauges. Oct. 10, 1876. Filed Sep. 20, 1875.

Claim. 1. The draft plate or hanger C, placed vertically on the end of a plow beam, having the lateral slot *s* and the vertical slots *i i* substantially as described, and for the purpose set forth.

2. The draft rod regulator composed of the vertically slotted plate C and the laterally adjustable parts D D, forming the laterally extensible slot *s* and the vertical slots *i i*, substantially as described, and for the purpose set forth.

**184,440. WILLIAM STRAIT,** Oneonta N. Y., assignor to C. L. Strait and C. E. Van Dusen, same place. Side-Hill Plows. Nov. 14, 1876. Filed Sep. 11, 1876.

Claim. 1. The combination with a plow having a stationary or fixed beam, of the adjustable or laterally and freely pivoted handles whereby the operator is enabled to walk directly in the furrow, and in either direction the furrow may be turned substantially as specified.

2. The devices for pivoting the handles to the standard consisting of the lugs or pin *b b* and metallic angular pieces D, having semi-circular portions *d* secured around the lugs or pins, in the manner substantially as described.

3. The combination of the pivoted handles with the standard A, having the opening in which the handles are pivoted and the con-

necting bar *a'* arranged to form a stop to limit the movement of the handles, as described.

4. In a reversible plow the combination, with a laterally adjustable colter or cutter and laterally swinging or adjustable handles, of the lever F or its equivalent substantially as described, whereby said colter or cutter is adjusted laterally by the movement of the handles substantially as and for the purpose specified.

5. The combination of the colter or cutter E, shifting lever F, loop or guide G, and adjustable handles C, substantially as and for the purpose specified.

**9,116. WILLIAM STRAIT,** Oneonta, N. Y., assignor to Charles E. Van Dusen and Celestia L. Strait. Side-Hill Plows. Original No. 184,440. Nov. 14, 1876. Re-issued Mar. 9, 1880. Filed Feb. 16, 1880.

Claim. 1. In a plow having a stationary beam, the combination of a reversible mold-board with handles made laterally adjustable and capable of having the central point between the handles moved either to the right or left past the line of the beam, in order to enable the operator to walk in the furrow when turned either to the right or the left, substantially as set forth.

2. In a plow having a stationary beam, a reversible mold-board and laterally-adjustable handles, in combination with a colter or cutter made adjustable either to the right or the left, substantially as specified.

3. The devices for pivoting the handles to the standard, consisting of the lugs or pins *b b* and metallic angular pieces D, having semi-circular portions *d*, secured around the lugs or pins in the manner substantially as described.

4. The combination of the pivoted handles with the standard A, having the opening in which the handles are pivoted, and the connecting-bar *a'*, arranged to form a stop to limit the movement of the handles, as described.

5. In a reversible plow, the combination, with a laterally-adjustable colter or cutter and laterally swinging or adjustable handles, of the lever F, or its equivalent, substantially as described, whereby said colter or cutter is adjusted laterally by the movement of the handles, substantially as and for the purposes specified.

6. The combination of the colter or cutter E, shifting-lever F, loop or guide G, and adjustable handles C, substantially as and for the purpose specified.

**184,449. DANIEL F. VICKERY and WILLIAM P. PRICKETT,** Oxford, Ala., assignors to themselves and R. G. Roberts, same place. Reversible Plows. Nov. 14, 1876. Filed Aug. 7, 1876.

Claim. In a reversible plow, the crossed standards E, carrying independent shares F, and connected at the top by the pivoted rotating bar G, in combination with the plow-beam A, keeper I, and drop-pin J, as shown and described.

**187,160.** E. G. MATTHEWS, Oakham, Mass. Plows. Feb. 6, 1877. Filed Nov. 2, 1876.

Claim. 1. In a side-hill plow, the frame or landside plate, constructed as described, with the rear handle extension D, and the neck E, carrying the cutter-socket E', formed rigidly thereon, and arranged to be secured to the under side of the plow-beam, substantially as and for the purposes set forth.

2. The combination with the reversible mold-board G of the knife or beveled edges 5 5, substantially as and for the purposes set forth.

3. The combination, with the point H and mold-board G, of the supporting and bearing curved shoulders 1 and 2, substantially as and for the purposes set forth.

**189,558.** E. C. HODGE, Oneonta, N. Y., assignor of one-half of his right to DeWitt Ford, same place. Reversible Plows. Apr. 17, 1877. Filed Nov. 22, 1876.

Claim. 1. The combination of the plates *a a* and shoe *b*, the parts being hinged at the forward ends thereof, and the rear adjustable vertically, as set forth.

2. The combination of the lever by which the mold-board is locked, the spring by which it is held down, and the pin or stud fixed thereon to lock the handles, as set forth.

3. The combination of the bars *f f*, pivoted to *A'*, the plates *i i*, and the adjustable handles, as set forth.

4. The yoke *f'*, in combination with the pivoted handles and with the locking-lever *Z*, arranged within the yoke, as set forth.

5. The improved mold-board for plows, formed with the checkered interior surface.

6. In combination with the point, having the two cutting edges, the mold-board, formed with both its edges continuous with the straight edges of the point, and arranged in the described relation to the curve of the beam, as set forth.

7. The curved end of the beam A, in combination with the arms *u u* and straps *u' u'*, by which the wheel is raised or lowered, as set forth.

**190,678.** JNO. GOGEL, Toledo, Ohio. Reversible Plows. May 15, 1877. Filed Mar. 3, 1877.

Claim. The combination of the lever *d*, hinged to the colter, with the angular standard *e*, for adjusting the colter to the right or left of the beam, as described.

**194,257.** J. NOURSE, Boston, Mass. Plows. Aug. 14, 1877. Filed Aug. 4, 1876.

Claim. 1. The combination of the loop L or seat for receiving the hook H with the swallow-tail or rear central portion of a swivel-plow mold-board, substantially as described and for the purpose set forth.

2. The combination of the horizontally-adjustable hook-support O with the cross-brace rod between the two handles of the plow, sub-

stantially as described, and for the purpose set forth.

3. The combination of the curved body of hook H with the eye and hook at either end, by means of which the hook can be lengthened for shortened, as described, and for the purpose set forth.

**194,428.** JULIUS HARTMANN, Louisville, Ky., assignor of one-half his right to A. Lauer, same place. Plows. Aug. 21, 1877. Filed July 7, 1877.

Claim. 1. In a reversible plow, the combination of the concave sheath S", curved brace B', and V-shaped brace B" with the mold-board, shares, and frame, composed of the land-sides L and connecting-bars T", all as shown and described.

2. In combination with a standard attached to the beam, the reversible plow proper, composed of the mold-board, shares, and land-sides, and laterally-curved colter-piece, and a connecting and supporting frame, all constructed and arranged as shown and described, whereby the pivots or spindle bearings are brought in rear of the inner side or edge of the colter, and the plow made a center-draft, as specified.

3. In a reversible plow, the double spring-catch projecting horizontally from the sides of the beam, to which it is fixidly attached, the vibrating frame carrying the mold-board, land-sides, and shares, and the double or T-headed lug, all combined as shown and described, to operate as specified.

**196,048.** FRANCIS E. SESSIONS, Worcester, Mass. Plows. Oct. 9, 1877. Filed May 3, 1877.

Claim. 1. The combination, with the rear end of the plow-beam, of cam F, recess or opening *d*, and the slotted and socketed metal piece E, substantially as and for the purposes set forth.

2. The combination, with the plow-beam swiveled to the front standard at *a*, and the swiveled mold-board B, of the cam-adjusting device D, and combined mold-board-locking and cam-reversing connecting-rod *h*, substantially as and for the purposes set forth.

**197,340.** WILLIAM A. COWLEY, Stamford, N. Y. Plows. Nov. 20, 1877. Filed Jan. 23, 1877.

Claim. 1. In a side-hill reversible plow, the combination of the adjustable beam A, swinging laterally upon a hooked pivot, P, near the point of the plow, and sliding upon the rear guide and brace-bar *b* of the frame and land-sides C C, as shown and described.

2. The laterally-adjustable beam A, in combination with the mold-boards D D, hinged to the frame and landsides C C, and secured in place by the connecting-rods *r r'*, whereby the swinging of the plow-beam automatically changes the position of the mold-boards to throw the furrow on either side, substantially as shown and described.

3. The adjustable colter E, with slide *a*, as

above described, and for the purpose specified.

4. In the construction of a flat-land or side-hill reversible plow, the combination of a beam, A, swinging laterally upon a hooked pivot, P, in the point and bed of the plow, and secured in place by means of an eccentric-lever, I, strap S, clamping-jaw t, and rods r' r r, or their equivalents, and in connection therewith two automatically-adjusting mold-boards, D D, attached by hinges or other suitable device to the point B and landsides C C, and an adjustable colter, E, all substantially as herein described, and for the purposes specified.

**198,028. SAMUEL A. KNOX,** Worcester, Mass. Plows. Dec. 11, 1877. Filed May 3, 1877.

Claim. A mold-board, D, for swivel-plows, the working-surface E of which consists of combined concave and convex surfaces, arranged in relation to each other, as shown and described, to produce or form two direct inclined planes, diverging from the point 1 to the points 2 2, substantially as and for the purposes set forth.

**198,611. JULIUS HARTMANN,** Louisville, Ky. Swivel-Plows. Dec. 25, 1877. Filed Oct. 27, 1877.

Claim. 1. As the hereinbefore-specified improvement in swivel-plows, the combination, with the beam and standard, of the swiveled mold-board and point, extending laterally to form a center-draft, and otherwise constructed and arranged as shown and described; that is to say, the wearing-surface formed of said mold-board and point having a gradually increasing convexity and width back of the center b, and a gradually-increasing concavity and width forward of the center to the angular projections a a, the concavity extending thence to the nose of the point, all as set forth, for the purposes specified.

2. As an improvement in swivel-plows, the combination of the reversible mold-board and point with the standard having the inclined shoulders or projections, substantially as and for the purpose specified.

3. As an improvement in swiveled or reversible plows, the bottom or landside bar, beveled or made oblique on opposite sides, as shown and described.

**199,036. CHARLES DANIEL,** Virginia, Mo. Reversible Plows. Jan. 8, 1878. Filed Oct. 20, 1877.

Claim. In combination with the shares C' and shaft B, the shifting-lever D, provided with the b, and the curved bar c, having holes to receive said pin, all as shown and described.

**199,093. BENJAMIN F. MORRIS,** Saltillo, assignor of one-half his right to T. F. Swift, Scott's Hill, and Wm. H. Strickland, Decatur County, Tenn. Reversible Plows. Jan. 8, 1878. Filed Nov. 3, 1877.

Claim. The combination, with the beam B, the reversible plow C, pivoted thereto, the col-

ter L, and the forked and looped brace G, secured to the beam and looped over the colter, of the snap-latch F, extending through and pivoted to said brace, substantially as specified.

**199,493. FRANCIS A. BARROWS,** Castleton, Vt. Plows. Jan. 22, 1878. Filed Dec. 28, 1877.

Claim. 1. A mold-board of a plow, connected to the standard or heel thereof, substantially as specified, so that the mold-board will have both a vertical and lateral adjustment, substantially as and for the purpose set forth.

2. The mold-board D, having secured thereto plate G, with vertical slot f, in combination with the plate H, having longitudinal slot e, and the bolts and nuts g h, substantially as and for the purpose specified.

**199,954. PETER BOUCHET,** New York, N. Y. Reversible Plows. Feb. 5, 1878. Filed Dec. 18, 1877.

Claim. 1. In a reversible or side-hill plow, the combination of the landside and adjustable colter with a swiveled duplex share and mold-board, adapted to swing around a vertical rear standard and lock to the point of the landside, substantially as and for the purpose specified.

2. The combination of the landside, having point and locking-hook, with a duplex share and mold-board having perforated points, and being hinged to a swivel-brace of the rear standard, substantially as and for the purpose specified.

3. The combination of the landside having fixed locking-hook, and of an extension swivel-brace of the rear standard, with a duplex share and mold-board hinged to said brace, and adapted to swing around the rear standard from one side to the other for changing direction of plow, substantially as specified.

**200,413. HENRY F. SHAW and GEO. F. SHAW,** Boston, Mass. Side-Hill Plows. Feb. 19, 1878. Filed Dec. 29, 1877.

Claim. 1. A side-hill plow having a mold-board formed in one piece, so that the rear portion presents two diverging concave surfaces, and hung, as to its rear end, by means of a link, E, pivoted at h and i, substantially as hereinbefore described.

2. The mold-board C, pivoted at a, and attached, as to its rear end, to the body of the plow by means of the link E, pivoted at h and i, substantially as and for the purpose hereinbefore set forth.

**201,281. JOEL NOURSE,** Boston, and JAS. A. HOWE, Ayer, Mass. Plows. Mar. 12, 1878. Filed Feb. 26, 1877.

Claim. 1. The construction of the mold-board for swivel-plows, in which the face is formed to fit the same curved ruler on the face of the mold-board along the lines a 1 and 2 2, 3 3, &c., on both sides of the axis-line, said lines being at equal distance apart on the face of the mold-board at each end, substantially as described.

**2.** The construction of the mold-board for swivel-plows, in which, if the face be cut by planes perpendicular to the axis-line, the resulting curve at the rear end of the mold-board shall be an arc of a circle, and the section at or near the forty-five-degree angle or front edge of the standard shall be a straight line, the curves varying in regular succession, forming arcs of circles of gradually-increasing radii from the arc at the rear to the straight line in front, substantially as described.

**3.** The mold-board for swivel-plows formed with convex center and concaved extreme edges for a short distance back from the standard, substantially as described.

**4.** The shoe S, when constructed to be held in position only by the lower portion of the landside L, upon which it is fitted with projections and recesses within the shoe, and by the brace extended from the heel of the shoe to the mold-board, substantially as described.

**204,484. CHARLES DANIEL,** Virginia, Mo. Plow-Colters. June 4, 1878. Filed Feb. 25, 1878.

Colter journaled in swiveled support attached to revolving sleeve on plow-beam, said sleeve provided with latch adapted to engage notched collar on said beam.

Claim. The combination with a swiveled colter and the beam B, of the collar f notched at opposite points, and the sleeve h having pivoted latch i as and for the purpose specified.

**204,513. HAZEN R. UNDERHILL,** Derry, N. H. Plows. June 4, 1878. Filed Mar. 30, 1878.

Claim. The combination of the recessed beam D, hooked plate G, lever H, spring I, transverse notched cross-bar J, and front bar J with the double mold-board A, point H, pivoting arm C, and bolt E, all constructed and relatively arranged as herein set forth, for the purpose specified.

**206,070. JOHN W. BARNETT and THOMAS J. HOBBS,** Fountain Creek, Tenn. Side-Hill Plows. July 16, 1878. Filed Apr. 29, 1878.

Claim. **1.** The combination with the plow standard of the mold-boards E E each hinged to a single plate F, which lies under the plow point and is held in place, together with said point, by a single bolt or screw, G, substantially as described.

**2.** The stop J, pivoted at its center to the standard A, combined with the hinged mold-boards and the loops K, substantially as described, for the purpose specified.

**207,468. L. ERWIN WILSON and JAMES E. McCANLES,** Burnsville, N. C. Side-Hill Plows. Aug. 27, 1878. Filed May 7, 1878.

Claim. **1.** The double reversible mold-boards A, formed of one piece of metal, provided with the central lugs,  $\alpha$   $\alpha$ , arranged to clasp the standard and allow the mold-board

to swing under it upon the bolt  $b$  substantially as shown and described.

**2.** The combination of the mold-board A, having lugs  $\alpha$ , standard B, hook G, beam H, and stops C, as shown and described.

**207,834. SIMEON F. WADLEIGH, OREN N. ROBERTS and GEORGE S. ROBERTS.** Meredith N. H. Plows, Sep. 10, 1878. Filed Feb. 1, 1878.

Claim. **1.** In a hill-side plow, a divided mold-board, one section thereof comprising the point and share, or furrow lifting part, to swing under the plow and the other section forming a double furrow inverter, to swing around horizontally at the rear of the plow the two sections locking together on each side of the plow, substantially as and for the purpose herein specified.

**2.** A shoe C, removably attached to the land-side D, and having a wide sole, of rocker form, substantially as and for the purpose herein specified.

**3.** A plow colter I, mounted in a socket t, of the land-side D, and having both a lateral and up-and down swinging movement therein, substantially as and for the purpose herein specified.

**4.** The combination of the laterally swinging colter I, pivoted lever K, forked at its two ends, the crank shaped pivot h and the mold-board section B, substantially as and for the purpose herein specified.

**5.** The slotted link G, constructed as described and the fastening bolt or catch H, in combination with the stud I and rear mold-board section B, substantially as and for the purpose herein specified.

**6.** A plow clevis provided with a swivel-link M, in combination with the clevis strap L constructed, arranged, and operating substantially as and for the purpose herein specified.

**208,048. WILLIAM STRAIT,** Oneonta, N. Y., assignor to Celestia L. Strait, same place. Plows. Sep. 17, 1878. Filed Feb. 21, 1878.

Claim. **1.** The combination, with the pivoted mold-board having the lugs i i and the pivoted handles, of a vibrating double hook or latch for securing the mold-board and handles in position, said hook moving with the handles and arranged relatively therewith to be operated by the foot of the operator, substantially as specified.

**2.** The combination, with the double hook or latch, of the notched plate G g and bolt and spring h h' substantially as and for the purpose specified.

**3.** The combination, with the pivoted shifting lever of the pivoted handles C, having the plate G, provided with the lugs or pins c c, substantially as and for the purpose specified.

**4.** The herein described colter-shank, consisting of the parallel projecting lips n n, cast on the front of the standard, substantially as specified.

**208,082. NELSON M. FOWLER,**

Beloit, Kan. Plows, Harrows and Seed Planters. Sep. 17, 1878. Filed Aug. 3, 1878.

Claim. 1. The combination of the furrow-wheels B B, oscillating axles b b rods d d, and lever E, substantially as and for the purpose shown and described.

2. The combination of the double plow G, plow-beam H, rods h h, levers J J, pawls i i and toothed or notched bar K, substantially as and for the purposes herein described.

3. The combination with the double plow and its carrying frame and wheels of the jointed tongue L<sup>1</sup> L<sup>2</sup> metal frame M, tongue or trip m<sup>2</sup> and notched or recessed rod or bar m, as shown and described, for the purpose specified.

**209,088. EDWARD TATE,** Jamestown, N. C. Hill-Side, Shovel, and Subsoil Plows Combined. Oct. 15, 1878. Filed Aug. 15, 1878.

Claim. 1. In a reversible plow, the plow-standards B B, each consisting of the two curved bars C C, welded together at one end, and to a plate or bar, a, at the other end, in combination with the beam B, having tenon I, for the purpose herein set forth.

2. The combination of the beam A, provided with the tenon I and swiveled clevis F, the plow-standards B B, provided with stops d and holes e, the pivoted handles D D, with cross-bar E and guides F' F', and the pin m, substantially as and for the purposes herein set forth.

**209,374. WILLIAM D. ARNETT,** Jefferson County, Colo. Sulky-Plows. Oct. 29, 1878. Filed Mar. 5, 1878.

Claim. 1. The combination of the eccentric-wheel k with the frames or beams d, axle h, lever l, and ratchet m, for the purpose of regulating the depth of the furrow.

2. In a reversible sulky-plow, the combination of a right and left hand plow, an axle, h, and wheels f g, whereby the entire implement is adapted to be turned over, as described, and for the purposes set forth.

3. A reversible driver's seat, in combination with the axle h, arranged to turn over and be secured in the desired position by means of a clamp, as shown.

4. The slide-bars p, in combination with the axle h, lever b, frames or beams d, and reversible plows a' b', as and for the purposes described.

**209,597. CHAS. M. LUFKIN,** Alstead, N. H. Swivel-Plows. Nov. 5, 1878. Filed Oct. 28, 1878.

Claim. The rocking beam A, carrying the colter i, in combination with the standard C, hinged to said beam, as described, the colter being shifted into line with the point b by means of the rocking beam, all constructed and arranged to operate substantially as set forth.

**213,095. WILLIAM E. CONNELLY,** Wedowee, Ala. Hill-Side Plows. Mar. 11, 1879. Filed Dec. 26, 1878.

Claim. The stock A of a plow, having secured thereto the spring-catch E, clips c, and a groove, f', in combination with the vertically-sliding bars d, having hooks f, substantially as shown and described.

**216,443. JOEL NOURSE,** Boston, and JAMES A. HOWE, Ayer, Mass. Swivel-Plows. June 10, 1879. Filed June 24, 1878.

Claim. 1. The landsides of the frame and share in a swivel-plow, constructed substantially as described, so that the parallel lines c d a b, and all the parallel lines between them resting on the landside of the plow at both rear and front edges, shall all pass through the stationary cutter or on the mold-board side of the same, whichever way the plow may be turned.

2. The landsides of the frame and share in a swivel plow, constructed substantially as described, so that any straight line resting on the heel of the plow at c, and passing through the stationary cutter at any point between d and b, shall fit against the edge of the landside of the share, or leave said edge on the mold-board side of said lines, substantially as and for the purpose set forth.

**216,448. GEORGE W. PETERSON,** Oxford, Ala. Hill-Side Plows. June 10, 1879. Filed Apr. 26, 1879.

Claim. The combination, with the beam A, having the rear curved portion, D, provided with a toe, a, and lateral shoulders c, and the guides e at each side of the beam, of the S-shaped standards E, extending through the guides and pivoted to the beam, the curved braces z, extending through the said guides and having perforations m n, and the spring-latches secured to the guides and having the spurs h, extending through perforations in the guides to engage perforations m n in the braces aforesaid, as specified.

**217,594. LUCIUS S. EDLEBLUTE,** Cincinnati, Ohio. Plows. July 15, 1879. Filed June 17, 1879.

Claim. A reversible plow, arranged to swivel upon a vertical axis, and having a right and left mold-board, made continuous by a connecting-wall arranged in a plane parallel with the line of draft, substantially as and for the purpose described.

**219,219. LUKE CHAPMAN,** Collinsville, Conn., assignor to the Collins Company, same place. Reversible Sulky-Plows. Sep. 2, 1879. Filed Jan. 24, 1879.

The revolving mechanism and latches. The colter-hanger moved laterally on the plow-beam by a lever. Movable blocks to increase or lessen the throw of a sliding clevis.

Claim. 1. The double plow provided with latch-bars u u, the plow-beam with arm s, and the latches w w, with block v, all combined to operate substantially as shown and described.

2. The colter z, with its frame a' and posts b', the clamps e', and beam i, and the mortises c', all combined to operate substantially as shown and described.

3. The colter *c*, with its frame and posts, the clamps *e*, the beam *i*, the mortises *c*, the lever *f*, and the ratch-bar *h*', provided with the adjustable ratch-notches *i*", all combined to operate substantially as shown and described.

4. The draft-bar *k*', the adjustable blocks having the ratch-notches *i*' *i*', and the clevis *n*', all combined to operate substantially as shown and described.

**219,220. LUKE CHAPMAN**, Collinsville, Conn., assignor to the Collins Company, same place. Reversible Plows. Sep. 2, 1879. Filed July 29, 1878.

Lever and locking devices for reversing and holding the plows.

Claim. 1. The plow-beam *a*, provided with the drop *a'*, the land-side having the lock *i* and *h*, serving as such in both adjustments, and the wings *c d*, with lock *g*, pivoted wholly behind the drop, all combined to operate substantially as described.

2. The beam *a*, provided with drop *a'*, stationary land-side *b*, wings *c d*, the mortised arm *k*', rising from the joined wings, and lever *j*, pivoted on the beam and extending forward, all combined to operate substantially as described.

**220,453. HARRY WIARD and WILLIAM R. BULLOCK**, Syracuse, N. Y. Hill-Side Plows. Oct. 7, 1879. Filed Sep. 16, 1879.

Claim. 1. The frog *a*, containing the socket-block *a'* and arm *a''*, constructed substantially as herein described, as and for the purposes specified.

2. The combination of the frog *a* and tripod-brace *c*, united by the rigid arm *a''*, with the land-side and mold-board, as and for the purposes specified.

3. The reversible double mold-board jointer, in combination with the reversible mold-board plow, constructed and arranged substantially as and for the purposes specified.

4. The combination of the notched segmental plate *z* with the beam and lower ends of the handles, by which they are adjusted, substantially as and for the purposes specified.

5. The combination of the plates *n* and *o* with the notched plate *z* and handles *m*, as and for the purposes specified.

**221,457. OZRO HASKIN**, Cambria, Cal. Reversible Plows. Nov. 11, 1879. Filed Sep. 2, 1878.

Claim. 1. The vertical pivot-pin *B*, passing through and turning in the beam, and having the lug or jaw formed close to the beam, in combination with the double mold-boards and land-sides and the continuous angular bar *C*, which forms the double standard, said bar having its angle hinged or pivoted to the lug of the pivot-pin, substantially as herein described.

2. The locking device consisting of the double recess formed by the T-head *H* and the pivoted swinging link *I*, with its lugs *J*, in combination with the double plows having the

continuous angular standard-bar *C*, hinged and swiveled beneath the beam, as shown, whereby each plow may be brought to the rear and turned up so that its point will fit its corresponding recess and be locked or released by one of the lugs *J*, substantially as herein described.

**222,979. HIRAM R. ACKLEY**, East Hamilton, N. Y. Plows. Dec. 30, 1879. Filed June 6, 1877.

Claim. The combination, with the reversible share *B* and the beam *A*, constructed with the slot *a*, made wide at its lower end and provided with the pin *f*, fixed centrally in its rear end, of the adjustable colter *c*, supported on the pin *e* in the slot *a*, substantially as and for the purpose set forth.

**222,980. WILLIAM L. BARTON**, Butler, Ky. Plows. Dec. 13, 1879. Filed Aug. 4, 1879.

Claim. The combination, with the handles *E E*, having rods *K K*, converging at their front ends and forming a hook, *J*, of the rotating beam *A*, having double standard *B*, carrying plows *C D*, the land-sides of which are provided upon their inner sides with staples *M M*, substantially as and for the purpose set forth.

**224,136. CHAPIN C. BROOKS**, Lancaster, N. H. Reversible Plows. Feb. 3, 1880. Filed Dec. 10, 1879.

One clevis within another. The outer one has side loops for reversible draft-plow. The inner is a drop-clevis, and as the draft is automatically shifted the inner clevis drops and holds in position. When a center draft is desired the evener is attached to both clevises. The colter is pivoted in a flaring mortise in the beam, and enters a vibrating lever, to which the hook that secures the mold-board is attached.

Claim. In reversible plows, the double clevis formed of the outer clevis, *U*, made with a recess near each arm, and the inner clevis, *V*, made with a recess in its center, substantially as herein shown and described, so that the point of draft attachment be changed automatically as the plow is reversed, as set forth.

**224,455. ELBRIDGE G. MATHEWS**, Le Sane, Minn. Plows. Feb. 10, 1880. Filed Mar. 1, 1879.

Claim. 1. In a plow, the combination of the crank-axle *C*, having the perforated disk *D*, with the sliding arm *M*, substantially as and for the purposes set forth.

2. In a plow, the crank-axle *C*, having the perforated disk *D*, with the sliding arm *M*, in combination with the plows *L L'*, secured to the racks *F*, working in ways in the block *E*, and the pinions *G G* upon the shaft *J*, carrying the perforated disks *H I*, and the hooked rods *K*, substantially as and for the purposes set forth.

**225,077. HENRY SATTLER,** Hermann, Mo. Plows. Mar. 2, 1880. Filed Dec. 20, 1879.

A frame beneath the beam formed of a branched standard, brace, and removable bearing-plate pivots the double plow held by a sliding keeper to either side.

Claim. In a side-hill plow, the combination of the frame *c*, constructed as described, bearings *f* for the shaft *g*, reversible plow-beam *a*, support *c*, and holding-latch, substantially as shown.

**225,105. FRANKLIN C. BRYAN,** Winona, Minn. Sulky-Plows. Mar. 2, 1880. Filed Jan. 6, 1880.

Claim. In a reversible sulky-plow, the combination of the frame *A* and independent crank-axes *E E'*, having separate operating-levers *Z*, with the right and left plows *G G'* and their beams *F F'*, independent plow - supporting cranks *K K'*, having separate operating - levers *I*, and suitable catches for said levers, all arranged substantially as specified.

**225,134. JEREMY P. HOLLEY,** Farmington, Me. Swivel Plows and Colters. Mar. 2, 1880. Filed Dec. 20, 1879.

Claim. 1. The colter - sheaths *I* and the rounded plate *K* upon the beam and between the sheaths, in combination with the colter and pivoted bar for lifting the colter, substantially as set forth.

2. The beam *A*, colter *G*, pivoted bar *H*, sheaths *I*, and chain *L*, in combination with a reversible plow, substantially as set forth.

**225,452. JOSEPH L. WOODBURY and GEORGE L. WOODBURY,** Oxford, Mass. Reversible Plows. Mar. 9, 1880. Filed Jan. 24, 1880.

Claim. 1. The swinging mold - board constructed with long extended wings, substantially as described, and adapted to adjust to right or left working positions, with its advanced wing projecting diagonally across and beyond the plane of the land-side above the soil-cutting edge of the share, in the manner set forth.

2. The cranked shaft *F*, in combination with the standard-frame, which carries shares *C C'*, and the swinging mold-board provided with ears or hinges *m*, connecting it to the offset portion of said shaft, substantially as set forth.

3. The locking-bar *I*, arranged and operating substantially as described, in combination with the standard-frame *A*, carrying shares *C C'*, and the swinging mold-board *E*, provided with openings or lugs *i*, to receive the end of said bar, as set forth.

4. The combination, substantially as herein-before described, of the standard-frame *A*, with right and left shares *C C'*, the horizontally-swinging mold-board *E* and draft-beam *B*, the cranked shaft *F*, forming the pivot or hinging-standard of both beam and mold-board, and the locking devices *I* and *G*, as set forth.

**226,567. PETER S. SWARTZ and ALEXANDER ARNOT,** Lexington, Mich. Plows. Apr. 13, 1880. Filed Sep. 15, 1879.

Claim. In a reversible plow having an angular base and supporting center wheel, the combination of the longitudinally-slotted beam-head *G*, having tenon *W*, with the blocks *S*, having a toothed cross-slot, the bolt *O*, provided with a toothed head, the mold-boards having the mortise *V*, and spring-pin *M N*, substantially as shown and described.

**232,001. AARON S. CLOUGH,** Meriden, assignor of one-half of his right to Moses H. Merrow, New Hampton, M. H. Reversible Plows. Sep. 7, 1880. Filed Nov. 26, 1879.

Claim. 1. The double mold-board *A*, having the angular landside *B* and pivoted close under the beam, in combination with the beam *C*, chamfered or beveled on its under side, substantially as and for the purpose herein specified.

2. The combination of the shaft or pivot of the reversible mold-board, turning therewith, and the draft-rod *D*, bearing the reversible clevis *f*, and being attached to, so as to turn in line with, the said mold-board shaft, substantially as and for the purpose herein specified.

**233,046. WILLIAM STRAIT,** Oneonta, N. Y., assignor to Celestia L. Strait, same place. Side-Hill Plows. Oct. 5, 1880. Filed Feb. 14, 1880.

Claim. 1. In a hill-side plow, a reversible jointer having the single mold-board *V*, adapted to operate as a right or left hand mold - board, substantially as set forth.

2. A reversible single mold - board jointer having landsides substantially as described.

3. The shifting handles and reversible jointer, in combination with the pivoted lever *F* and slotted arm *E*, all arranged for operating substantially as set forth.

4. In a plow, the T-brace *J*, pivoted to the heel of the landside and having the slot *Z*, in combination with the bolt *N*, lugs *K*, and the coupling-bolt *O*, substantially as set forth.

**235,156. BENJAMIN J. LESLIE,** De Mossville, Ky. Reversible Plows, Dec. 7, 1880. Filed Mar. 30, 1880.

Claim. 1. The wing *C*, constructed as shown with laterally extended diverging sections *c* pivot *c'* and notch or pivot *c''* in combination with the mold-board *A*, having an opening and socket *d* for the reception and play of the wing, substantially as and for the purpose specified.

2. The swiveling beam *D*, in combination with the sheath or standard *B* and brace *G*, encircling the standard, substantially as and for the purpose specified.

3. The combination of the plate *E*, having jaws *e e'* projecting from its ends, the former projecting beyond the latter, with the bolt *F*, having a sliding movement limited so that the

bolt may when withdrawn, form a permanent stop to limit the rotation of the swiveling beam in one direction at either end of the plate E, yet when thrust forward engage between the jaws and prevent all movement of the swiveling beam constructed and arranged as shown and for the purpose specified.

**239,773. JULIUS HARTMAN,** New York, assignor of one fourth to Hans C. Pfalzgraf, New Utrecht, N. Y. Reversible Plows. Apr. 5, 1881. Filed Nov. 13, 1880.

Claim. 1. In a reversible plow the handle G, pivoted to a sliding collar L, in combination with a rotating beam and a locking screw as and for the purpose described.

2. The rigid collar S, and the loose sleeve T having the two opposite side notched arms, U, combined with the beam, as and for the purpose described.

3. The combination with the beam H, of the journal box V, pivoted at right angles to a slide-bearing, W, and held in any position on the uprights X X by a screw passing through the cross bar g and crank nut h as and for the purpose specified.

4. In a reversible plow the combination, with the plow, the beam, the carriage, and the notched draft bars U U, of two draft-chains n n, substantially as herein shown and described, and for the purpose set forth.

**241,861. FRANKLIN F. HOLBROOK and ERI S. MOULTON,** Chelsea, Mass. Plows. May 24, 1881. Filed Nov. 3, 1880.

Claim. 1. The spring hook J, consisting of a telescopic rod connected by universal joints of one end with the swiveling mold-board and at the other end with the plow frame, and one part carrying a spring latch and the other a double catch, whereby the mold board may be locked on either side of the plow, substantially as described.

2. The device for automatically swiveling the plow-beam by swiveling the mold-board, consisting of a crank and crank pin, the latter working in a slot in the rear of the plow beam which swivels on a stud in its seat, and the crank being rigidly secured to a shaft or pivot which forming part of a system of universal joints by which the mold board and frame are connected, turns as the mold-board swivels.

3. The device for automatically adjusting the swiveling plow-beam to the evener or yoke by swiveling the mold board, consisting of a crank and crank-pin, the latter having a longitudinal adjustment on the crank to determine the length of the crank, and working in a slot in the rear end of the plow-beam, while the crank is rigidly secured to a shaft, which is a pivot connected with and turned by swiveling the mold-board, substantially as described.

4. The device for automatically adjusting the plow beam to the strength of the animals or to a warped beam, consisting of a crank and crank pin the latter working in a slot in the

rear end of the swiveling plow beam while the crank has a swinging adjustment upon and may be rigidly secured to its shaft, which is a pivot connected with and turned by the mold-board, substantially as described.

5. The truss-frame J, having a tie which forms a connection between the arm employed as a seat for the beam and the arm to which the handles are attached, substantially as described.

6. The dog-rod F, forked as described, to distribute the strain over a large portion of the mold-board.

7. The device for securing the plow-share to the mold-board, consisting of the studs ff keys hh and key-holes in the mold-board substantially as described.

8. The frame Y, adjustable on the plow-beam by means of flanges b' b' and the set screw w', substantially as described, for the purpose specified.

9. The double jointer point V<sup>3</sup> in combination with the mold-board of the jointer having two faces V' V<sup>2</sup> and the shank v', boss e<sup>5</sup> and nut w<sup>2</sup> substantially as described.

10. The beam B, clevis S, provided with slot s' the stud a<sup>2</sup> nut n' straps e<sup>2</sup> e<sup>4</sup> wheel W, and draft rod T, substantially as described.

11. The beam B, clevis S, provided with slot s' the stud a<sup>2</sup> nut n' straps e<sup>3</sup> e<sup>4</sup> wheel W, and draft rod T, and slide plate e<sup>2</sup> bolt a<sup>3</sup>, and nut n<sup>4</sup>, substantially as described.

12. A double faced jointer having two fixed mold-boards and an adjustable shank, in combination with the frame Y, and plow-beam B, substantially as shown and described.

**9,760. FRANKLIN F. HOLBROOK, and ERI S. MOULTON,** Chelsea, Mass., Plows. Original No. 241,861, dated May 24, 1881. Reissued June 14, 1881. Filed May 25, 1881.

Claim. 1. The spring hook J, consisting of a telescopic rod connected by universal joints at one end with the swiveling mold-board, and at the other end with the plow frame and one part carrying a spring latch and the other a double catch whereby the mold-board may be locked on either side of the plow, substantially as described.

2. The device for automatically swiveling the plow beam by swiveling the mold board, consisting of a crank and a crank pin, the latter working in a slot in the rear of the plow-beam, which swivels on a stud in its seat, and the crank being rigidly secured to a shaft or pivot which forming part of a system of universal joints by which the mold-board and frame are connected turns as the mold-board swivels.

3. The device for automatically adjusting the swiveling plow beam to the evener or yoke by swiveling the mold-board, consisting of a crank and crank pin, the latter having a longitudinal adjustment on the crank to determine the length of the crank, and working in a slot in the rear end of the plow beam, while the crank is rigidly secured to a shaft which is a

pivot connected with and turned by swiveling the mold-board, substantially as described.

4. The device for automatically adjusting the plow beam to the strength of the animals or to a warped beam, consisting of a crank and crank pin, the latter working in a slot in the rear end of the swiveling plow-beam, while the crank has a swinging adjustment upon, and may be rigidly secured to, its shaft which is a pivot connected with and turned by the mold-board, substantially as described.

5. The truss frame J, having a tie which forms a connection between the arm employed as a seat for the beam and the arm to which the handles are attached substantially as described.

6. The dog F, forked as described, to distribute the strain over a large portion of the mold-board.

7. The device for securing the plowshare to the mold-board, consisting of the studs f f, key h h, and key-holes in the mold-board, substantially as described.

8. The frame Y, adjustable on the plow-beam by means of flanges b<sup>2</sup> b<sup>2</sup>, and set-screw w', substantially as described, for the purpose specified.

9. The double jointer-point V<sup>3</sup>, in combination with the mold-board of the jointer, having two faces, V' V<sup>2</sup>, and the shank v', boss e', and nut w<sup>2</sup>, substantially as described.

10. The beam B, clevis S, provided with slot s', the stud a<sup>2</sup>, nut n', straps e<sup>3</sup> e<sup>4</sup>, wheel W, and draft-rod T, substantially as described.

11. The beam B, clevis S, provided with slot s', the stud a<sup>2</sup>, nut n', straps e<sup>3</sup> e<sup>4</sup>, wheel W, draft-rod T, slide-plate, e<sup>2</sup>, bolt d<sup>3</sup>, and nut n', substantially as described.

12. A double-faced jointer having two fixed mold-boards and an adjustable shank, in combination with the frame Y and plow-beam B, substantially as shown and described.

13. The plow-point G', provided with the triangular recess e<sup>2</sup> and the shank e, in combination with the share G, having a projection fitting the recess e<sup>2</sup>, a hole in its forward part, and boss e', to receive and secure the shank e, all as and for the purpose described.

14. The shoe or runner C, affording a long and stable bearing to the plow, in combination with the plow-frame, and the mold-board having the raised pivot-bearings, substantially as described.

15. A graduated scale attached to the vertically-adjustable gage-wheel frame or holder, in combination with an index or pointer attached to the plow-beam for the purpose of gaging the depth of the work, as set forth.

**242,697. HENRY SATTLER,** Swiss, Mo. Hill-Side Plows. June 7, 1881 Filed Apr. 14, 1881.

A saw-tooth colter is swiveled and adjustable vertically and on the beam. Devices for bracing the frame and locking the mold-boards by gravity-latch.

Claim. 1. The combination of the support

G, and the brace H, secured to its front side and provided with the projection I, with the plates J, extending forward and having their front ends fastened to the beam A, substantially as shown.

2. The combination of the supporting-slide T, having its lower end made hollow and provided with holes upon opposite sides, with the curved end of the support for the cutter, and the two clamps W, provided with projections for passing through the holes in the sides of the sliding support, substantially as specified.

**242,757. WILLIAM A. COWLEY,** Stamford, N. Y. Side-Hill Plows. June 14, 1881. Filed Sep. 11, 1880.

A double hook with springs to hold either end in engagement with the mold-board of a reversible plow.

Claim. The double-ended and hooked lever C, having a square hub, e, and stop f, in combination with the springs g upon the beam of the plow, and the reversible mold-board A, having lugs d, substantially as shown and described.

**249,234. JESSE S. FELT,** Greenwood, Me. Plows. Nov. 8, 1881. Filed Oct. 11, 1880.

Claim. 1. In a reversible plow, the combination, with the rotary mold-boards d d', of the two-faced hinged mold-boards e e', provided with pivots q, the long bearing s, projecting through the rotary mold-boards, and the button u, as set forth.

2. The combination of the standard b, foot a, having point w, mold-boards d d', pivot-bolt f, and bevel-disks k, forming an adjustable stop for the point w, to cause the plowshares to take more or less land.

3. The combination of the rotary mold-boards d d', beveled disks k, landside a b, the extensible hook g, vertically adjustable and the hinged mold-boards e e', substantially as shown and described.

4. The combination of the rotary mold-boards d d', slot p, and button u with the landside a b and pivot-bolt f, and adapted to be used with or without the hinged mold-boards, as shown and described.

**251,445. JULIUS KONIG,** Snydersburg, Md. Plows. Dec. 27, 1881. Filed Aug. 4, 1881.

Claim. In combination with the perforated adjustable beam and mold-boards, the front truck having wheels of unequal size, a fifth-wheel adapted to be secured to the beam, and an upwardly-projecting king-bolt, as and for the purpose set forth.

**254,585. JOHN G. ANDERSON,** Ivy, N. C. Hill-Side Plows. Mar. 7, 1881. Filed Nov. 29, 1881.

Claim. In a hillside-plow, the combination of the beam, the curved double standard attached to the rear end thereof, the handles pivoted to the beam, the curved rack-bars E,

secured to the double standard, and sliding latches F, adapted to engage the rack-bars and to move on the plow-handles, and having their ends extended rearwardly adjacent to the outer end of said handles, said parts being constructed and arranged to operate as and for the purposes set forth.

**258,288. WILLIAM H. DURFEE,**  
Fall River, Mass. Side-Hill Plows. May  
23, 1882. Filed Feb. 20, 1882.

Claim. 1. In a side-hill plow, the combination, with the plow-beam  $\alpha$ , of the frame  $e$ , forming the rear, and the frame  $c$ , forming the front, of the machine, the curved connecting-bars  $d$   $d$ , and the arch  $f$ , constructed to allow the plows to be turned within the frame, as described.

2. The combination, with the plow-beam  $\alpha$  and frame  $e$ , of the locking-lever  $m$ , the notched ring, the hand-wheel, and the pinions  $l'$   $l'$ , adapted to turn the plow-beam, as described.

3. The combination, with the plow-frame, of the side-wheel,  $v$ , secured to the pivoted axle  $n$ , and means for securing the axle in place and of turning it to change the side-wheel from one side to the other, as described.

4. The combination, with the frame and the pivotally-secured side-wheel,  $v$ , of the front wheel,  $r$ , swivel  $s$ , brace  $t$ , and tongue-plates  $u$ , all arranged and operating substantially as described.

5. The combination, with the frame  $e$  and pivoted axle  $n$ , of the seat  $A$ , adapted to turn with the axle, as described.

**259,836. JOHN H. FELDMANN,** St.  
Louis, Mo. Hill-Side Plows. June 20, 1882.  
Filed Feb. 14, 1882.

Claim. 1. In a hillside-plow, the combination of concave mold-boards E E, having straight landsides  $e^2$   $e^2$  in one piece therewith, the mold-boards being over the landsides, as shown and described.

2. In a hillside-plow, the combination of concave mold-boards E E, having straight landsides  $e^2$   $e^2$ , the share D, shoe C, and rod F, the mold-boards with their landsides being hinged to the shoe, as set forth.

3. In a hillside-plow, the combination of mold-boards E E, having landsides  $e^2$   $e^2$ , share D, hinged to the mold-boards, rod F, sleeves  $e^3$   $e^3$ , and screw-bolt  $e^4$ , as set forth.

**262,716. SILAS F. WOODWORTH,**  
New Castle, Cal. Plows. Aug. 15, 1882.  
Filed July 28, 1881.

Claim. 1. The combination, in a reversible plow, of the share or point P, adapted to receive either mold-board right or left, the pivoted landside  $l$   $s$ , the notched arms C C, and standard S, substantially as described.

2. The combination, in a reversible plow, of the angular landside  $l$   $s$ , journals J J, frogs f and F, and standard S, substantially as described.

3. The combination, in a reversible plow,

of the point P, adapted to receive the lugs  $\alpha$   $\alpha$ , and arms C C, having notches  $x$   $x$ , to engage with the lugs  $r$ , substantially as and for the purpose specified.

**265,328. ROBERT I. KNAPP,** Half-moon Bay, Cal. Side-Hill Plows. Oct. 3, 1882. Filed Nov. 29, 1881.

Claim. 1. In a reversible mold-board plow, the landside C, having the stud  $\alpha$ , entering an opening in the part D, and the socket to receive the stud  $\beta$ , projecting from the brace E, in combination with the bolt F, extending through the landside and studs and screwing into nose-piece D, substantially as and for the purpose herein described.

2. In combination with a reversible mold-board plow, the beam A, swiveling upon the standard B, the horizontal slotted plate H, secured to the handles below the rear end of the beam, the bolt I, extending through the beam and the slot in the plate, and the locking cam-lever J, the whole combined to operate substantially as herein described.

3. In a plow, the beam A, swiveling upon the standard, and having its rear end moving from side to side upon the rest-plate H, in combination with the bolt I, and cam-lever J, as shown, the bolt I having the adjustable nut  $\epsilon$ , substantially as and for the purpose herein described.

4. In a reversible mold-board plow having the share made concave, with the edges K K' turned up, as shown, the mold-board L, the rear portion of which is made plane or flat in its transverse diameter, substantially as herein described.

5. In a reversible mold-board plow, the combination of a share made concave upon its working-face both longitudinally and transversely, and the mold-board L, made concave longitudinally in continuation with the share, but having its rear portion plane or flat in its transverse diameter, substantially as herein described.

**266,627. JAMES A. HOWE,** Ayer,  
Mass. (Esther W. Howe, Administratrix of  
said James A. Howe, deceased.) Swiveled  
Plows. Oct. 31, 1882. Filed Feb. 24, 1882.

Claim. 1. The mold-board of a swivel-plow, having its rear end convex and its front portion made with a central convex arc and side concave arcs, arranged transversely and increasing in radius from rear to front, substantially as shown and described.

2. The mold-board A, having three transverse arcs, the central convex arc being equal in radius to that of both the side concave arcs, and converging at the rear to form a convex mold-board at B C, substantially as shown and described.

3. The combination, with the mold-board A, having at its front end a series of three arcs arranged transversely to each other, of the supporting-shoes L L', substantially as shown and described.

**267,724. LEOPOLD SCHMIDT,** Da  
masus, Ill. Plows. Nov. 21, 1882. Filed  
Apr. 13, 1882.

Claim. In a reversible plow, the combination of the triangular share F, having extension e, and plate provided with three or more loops f, the shaft G, and the hook H on the plow-frame, adapted to engage said loops f and and be shifted to either side of the frame, substantially as described and shown.

**269,002. FRANKLIN C. BRYAN,**  
Winona, Minn. Wheel Plows. Dec. 12,  
1882. Filed May 20, 1882.

Machine composed of three frames pivoted to each other. Each plow has an independent

frame and axle, which are pivoted to the tongue frame and raised by a rigid lever. The tongues are pivoted to the cross-bars, and may be deflected.

Claim. 1. In a wheel plow, the combination, with the lateral plow frames F'F' and their independent axles A, of the plow-beams B, and the clamps x, having the vertical parallel bolts t, one on each side of the plow-beam, substantially as specified.

2. The wheel-plow consisting of the front frame, D, its quadrants m, and tongues T T', the lateral independent plow-frames F F', pivoted to said front frame, their levers l, axles A, and wheels W, and the plow-beams B and their plows, substantially as specified.









## STANDARDS.

| <i>Plate</i>     | <i>Claim</i> |     | <i>Plate</i>    | <i>Claim</i> |     | <i>Plate</i>     | <i>Claim</i> |     |
|------------------|--------------|-----|-----------------|--------------|-----|------------------|--------------|-----|
| Avery, G. C.     | 991          | 609 | Lane, J.        | 086          | 607 | Semmes, R. T.    | 991          | 609 |
| Boger, H.        | 987          | 607 | Lindahl, D      | 992          | 609 | Smith, A. B.     | 987          | 607 |
| Brannan, F. P.   | 986          | 607 | Loeb, P.        | 987          | 607 | Speer, W. W.     | 989          | 608 |
| Brinly, T. E. C. | 985          | 607 | McMeekin, F. W. | 985          | 607 | Speer, J. T.     | 989          | 608 |
| Brown, W. P.     | 991          | 609 | Mead, S.        | 989          | 608 | Tiemphn, T. T.   | 991          | 609 |
| Daniels, W. H.   | 988          | 608 | Meikle, T.      | 990          | 608 | Van Every, C. M. | 987          | 607 |
| Finnegan, J.     | 990          | 608 | Monroe, J. H.   | 989          | 608 | Warlick, N.      | 985          | 607 |
| Hart, G. D.      | 986          | 607 | Phillips, J.    | 988          | 608 | Young, W. B.     | 985          | 607 |
| Haven, G. S.     | 990          | 608 | Pope, S. W.     | 986          | 607 |                  |              |     |
| Kearney, B. S.   | 988          | 608 | Ryan, J. F.     | 990          | 608 |                  |              |     |

## STANDARDS.

**18,480. NOAH WALKER,** La Fayette, Ind. Plows. Oct. 20, 1857.

Claim. The double-faced plow-stock, constructed, arranged and operating substantially as and for the purpose hereinbefore set forth.

**46,418. WILLIAM B. YOUNG,** Chicago, Ill. Plows. Feb. 14, 1865.

This invention consists in forming the plow standard of a single piece of sheet iron or steel, bent or curved into the proper form, for the purpose of combining cheapness of manufacture with strength and lightness.

Claim. A plow standard made of sheet iron or steel with upper part bent or curved, constructed and operating substantially as above described.

**58,119. F. W. McMEEKIN,** Morrison's Mill, Fla. Plows. Sep. 18, 1866.

Claim. The standard C, constructed of a single metal bar doubled and bent so as to have two diverging arms *a* *a'* and an inclined loop *b* in combination with the land-side and mold-board, all arranged to form a new and improved plow, as set forth.

**71,968. T. E. C. BRINKLEY,** Louisville Ky. Plows. Dec. 10, 1867.

Claim. 1. The mode of attaching the beam D to the plows by a socket C, connected with the land-side by braces B B substantially as set forth.

2. The combination of socket C constructed with diagonal flanges C' the handles, and the beam, substantially as set forth.

**78,203. GEORGE D. HART,** Muncy, Pa. Cultivators. May 26, 1868. Antedated May 11, 1868.

This is designed as an improvement on the cultivator described in letters patent No. 63,384, dated April 2, 1867, and special reference to the method of connecting the plow standard to the frame.

Claim. The above as set forth, whether used in combination with this machine or separate in any other reference being had to letters patent above referred to.

**104,964. JOHN LANE,** Chicago, Ill., assignor to himself, Charles H. Hapgood, William B. Young, and G. H. Laughton, same place. Plows. July 5, 1870.

Claim. 1. A plow-standard, which consists of a flat bar, stiffened and strengthened by a projecting angle-piece or rib, when made in one piece and arranged substantially as shown.

2. The upright A and bar B or lug C, welded together above the mold-board, substantially as shown, and for the purpose set forth.

3. The crooked coupling bar B, welded to the upright of a plow-standard, and bolted to the mold-board and share, substantially as shown.

**105,843. SAMUEL W. POPE,** Louisville, Ky. Plows. July 26, 1870.

Claim. The combination of the slotted adjusting plate, notched standard, and beam, as described, for the purpose set forth.

**131,596. FRANCIS B. BRANNAN,** Richmond, Va. Plows Sep. 24, 1872.

The plow-standard is secured to the beam by means of a bolt and a slotted arm, by which the desired adjustment is made.

Claim. A plow-standard B, having flange G, and vertical slot on rear arm, combined with eccentric polygonal washer F, arranged on the bolt E, that clamps standard to the beam, as and for the purpose described.

**132,779. ABIA B. SMITH,** Rochester, Pa. Plows. Nov. 5, 1872. Antedated Nov. 1, 1872.

Claim. The combination of the slotted wedge W embracing the standard S, and the removable notched key K fitting into a slot of the standard, as and for the purpose specified.

**140,053. PETER LOEB,** Dayton, Ohio. assignor of one half his right to Dayton Malleable Iron Co., same place. Plows. June 17, 1874. Filed May 10, 1873.

The standard is hollow, elliptical in cross section and provided with one or more internal strengthening plates. Upon its external lower portion there are formed seats for the land-side, share, and mold-board.

Claim. 1. The plow-standard constructed of the elliptical tube as shown, and having opening B, boss *b*<sup>1</sup> and swell *a*<sup>1</sup> said standard changing gradually in its lower portion to an angular shape, and forming the mold-board wing A' and the recess *a*<sup>2</sup> for the land-side, substantially as specified.

2. The tubular plow-standard having one or more interior vertical cross-braces, B, substantially as set forth.

**157,892. CHAUNCEY M. VAN EVERY,** Bronson, Mich. Plows. Dec. 15 1874. Filed Oct. 10, 1874.

Plates with serrated joints are placed between the plow-beam and standard, to change the line of draft.

Claim. The combination, with standard B, having the cap C notched at H, the screw J, and the apertured beam A, of the plate D, notched and serrated at G, and having top studs F F, as and for the purpose described.

**161,095. HENRY BORGER,** Urbana, Ohio. Plow Standards. Mar. 23, 1875. Filed Oct. 28, 1874.

Standard pressed to shape in dies; the top fitted in and welded.

Claim. A plow standard composed of the

main body A, formed of angle iron and of the shape substantially as shown and described, and the flat plate B, of bar-iron, the two welded together as set forth.

**168,235. WM. H. DANIELS,** Montpelier, Ohio. Plows. Sep. 28, 1875. Filed Feb. 3, 1875.

A standard in two parts, to allow the beam to be elevated, moved laterally, or its pitch regulated.

Claim. The T-shaped stand or bar B, with the vertical and curvilinear slots c c and transverse slots g g in combination with the plow with the set-screws d f and plow beam with the set-screws h h substantially as and for the purpose set forth.

**170,764. JOSEPH PHILLIPS,** Smithton, Ill. Plows. Dec. 7, 1875. Filed Oct. 8, 1875.

Claim. The plow-upright A, having a flange a<sup>1</sup>, formed upon its upper end, having its lower end a<sup>2</sup> a<sup>3</sup> forked or widened, and a horizontal prong or arm, a<sup>4</sup>, formed upon it, having a longitudinal rabbet, a<sup>5</sup>, formed upon the rear part of its land-side side, and two longitudinal flanges, a<sup>6</sup> a<sup>7</sup>, formed upon its mold-board side, substantially as herein shown and described, to adapt it to receive the beam B, the land-side C, the mold-board D, the share E, and the handles F G, as set forth.

**174,539. BENJAMIN S. KEARNEY,** Franklinton, N. C. Plows. Mar. 7, 1876. Filed Feb. 5, 1876.

The peculiar construction of the plow-standard, fitted to receive the usual number of parts to form a complete plow.

Claim. The plow-standard A, constructed as described, with its lower end enlarged equally on both sides, and provided with the perforated rear wing B, whereby the standard is adapted to receive a series of interchangeable attachments, as herein set forth.

**176,188. SOLOMON MEAD,** New Haven, Conn. Plows. Apr. 18, 1876. Filed Aug. 11, 1874.

Claim. The standard of a plow, the upper front edge of which, above the point of the junction with the mold-board, conforms to a section of the shorter curve of an ellipse, the major axis of which is twenty inches and its minor axis ten inches, substantially as shown and described and for the purpose set forth.

**178,454. JOHN H. MONROE,** Minneapolis, Minn., assignor to Monitor Plow Works, same place. Plows. June 6, 1876. Filed Mar. 9, 1876.

Claim. The plow-frame consisting of the front standard B, the rear standard K, with sole and cross-brace connecting the same, all cast in one piece, and curved inward and upward from the land-side, and provided with a perforated lug upon the top of the front standard, to receive the handles, and with a cross-slot on the rear standard to allow lateral ad-

justment of the beam, substantially as shown and described.

**183,823. W. W. SPEER,** Pittsburg, Pa. Plow-Standards. Oct. 31, 1876. Filed Sep. 29, 1876.

Corrugations running parallel with the front edge of the standard.

Claim. The standard of a plow, constructed with corrugations or grooves, curved concentric with its cutting-edge, substantially as and for the purpose set forth.

**195,668. JOE T. SPEER,** Pittsburg, Pa. Plows. Sep. 25, 1877. Filed July 10, 1877.

Claim. A standard cast with the continuous front-edge projection, forming a raised bearing for the mold-board, the share-seat, adapted to receive the share in its entire bearing-surface, and the recesses surrounding the bolt-holes on the land-side of the standard, substantially as described.

**197,623. JOHN FINNEGAN,** Ann Arbor, Mich. Plows. Nov. 27, 1877. Filed Sep. 1, 1877.

The rear arm of the standard is cast with a platform, on which rests the plow-beam, adjustable in a cross-slot. It also has slotted wings cast on it for handle-supports, and center slots for their end attachment, allowing them vertical adjustment.

Claim. The standard plate F, cast with the angle-plate b and wings F<sup>5</sup> F<sup>6</sup>, substantially as and for the purpose set forth.

**206,830. JOHN F. RYAN,** Maysville, Ky. Plow-Standards. Aug. 6, 1878. Filed July 6, 1878.

Claim. The plow-shin described, consisting of the curved part A, having beveled outer surface a and bolt-holes a', the part B, having oval surface b and bolt-holes b', the beam-bar C c, and the plow-foot D, with shoulder d, and having land-side E, as shown, adapted to serve relatively to the plow F f' f'' f''' or cultivators G, H, or I at will, and to be reversed upon the plow-beam when desired, as herein specified, for the purpose set forth.

**208,680. GEO. S. HAVEN,** Racine, Wis. Plows. Oct. 8, 1878. Filed June 27, 1878.

Claim. The combination of the curved standard or plow-beam B, with a collar, A, formed on its lower end, and set-screws E, with the brace L and the mold-board and land-side, whereby the beam or standard is connected to the lower part of the plow only, and provided with lateral adjustment, substantially as shown and described.

**209,284. THOMAS MEIKLE,** Louisville, Ky. Plow-Standards. Oct. 22, 1878. Filed May 1, 1878.

Claim. The standard-head D, having lateral adjustment upon the plow-beam, and provided with the perforated web D', in combination with the double standard C, pivot-bolt d, and

adjusting-bolt  $d''$ , substantially as shown and described.

**216,146. WILLIAM P. BROWN,** Zanesville, Ohio. Plow Attachments. June 3, 1879. Filed Mar. 29, 1879.

Claim. 1. The combination of the adjustable boot, having tubular shank F, with strengthening-rib f, with socket-brace G g g, plow H, and set-screw I, as and for the purpose specified.

2. The adjustable removable boot described, having the jaws C and shank F f, being bent at x to properly incline the plow, constructed and adapted to serve as set forth.

**218,417. GEORGE C. AVERY,** Louisville, Ky. Plow-Standards. Aug. 12, 1879.

Filed May 9, 1879.

Claim. 1. The cap B, concave at  $\alpha$  on its upper surface, and provided with a hollow extension, d, in combination with the plow-standard A and a suitable fastening device, substantially as shown and described.

2. The plow-standard slotted or forked at its upper end, in combination with a standard-cap B, having a tubular support or extension, d, and a fastening device, as at C', substantially as and for the purpose herein described.

3. The plow-standard cap B, provided with a tubular extension or support, d, having an upwardly-contracted passage, and a fastening, C', substantially as and for the purpose described.

**225,425. RAPHAEL T. SEMMES,** Atlanta, Ga. Plows. Mar. 9, 1880. Filed Jan. 22, 1880.

Claim. 1. The reversible triangular standard composed of the single bar A I, extended through and bolted to the opposite side of the plow-beam, and the double bar B D, bolted to the single portion below the plow-beam, and connected to the single bar at the bottom by

the base, heel-piece, or land-side L, substantially as and for the purpose described.

2. The standard composed of the single bar A I, extended through the beam, and the double bar B D, bolted to the single bar, as described, in combination with the beam and the handles bolted to the beam at J, and also to the standard at C, for the purpose of reciprocally bracing the standard, beam, and handles and preventing the standard from turning on its bolt K, as described.

**232,315. THOMAS T. TEMPLIN,** Maysville, Ky. Plows. Sep. 14, 1880. Filed Apr. 22, 1880.

One end of the standard is shaped to seat a mold-board and the other a shovel plow. It may be loosed from the beam and revolved upon the brace-bolt.

Claim. The within-described plow-shin, constructed to be reversible; that is to say, revolving upon a horizontal axis at its center, and adapted at one end to have a plowshare attached thereon, and to the opposite end a shovel or bull-tongue, and provided with rod F and bolt b, all arranged to operate as herein set forth.

**251,370. DANL. LINDAHL,** Chesterton, Ind. Plows. Dec. 27, 1881. Filed Dec. 19, 1879.

Claim. 1. The plow-standard T, bent to landward at right angles, as described, in combination with the colter C, having its upper end secured at or near the lower angle, t', of said standard, substantially as set forth.

2. In a plow, the standard T, having the portion t' directed horizontally outward upon the land-side and extended in this direction to a distance about equal to the width of the cut made by the plow, and thence upward to the beam, whereby weeds on the unplowed ground may be broken down, and therefore more perfectly covered in the next succeeding furrow, substantially as described.





## STEAM.

| <i>Plate Claim</i>                                 |          | <i>Plate Claim</i>                           |          | <i>Plate Claim</i>                   |
|--|----------|--|----------|--------------------------------------|
| Allen, J. S., Brown, M. P.<br>and Moulthrop, C. W. | 1028 632 | Greig, D., and Head, J.                      | 1010 625 | Millen, W. H. H.                     |
| Bassett, S. K.                                     | 1002 621 | Fowler, J. Jr.                               | 1012 626 | Miller, H.                           |
| Beard, J.  | 1032 633 | Fowler, J. Jr. Worby, W.<br>and Greig, D.    | 1013 626 | Mooser, H.                           |
| Beaumont, D.                                       | 1031 632 | Fowler, J. Jr. Greig, D.<br>and Noddings, R. | 1013 626 | Northcott, J. H.                     |
| Beckett, W.  | 1021 629 | Foye, W. H.                                  | 1035 635 | Olmsted, O. A.                       |
| Bellinger, E. C.                                   | 995 619  | Foye, W. H.                                  | 1035 634 | Paine, H. E.                         |
| Benson, B. S.                                      | 1031 633 | Gaudner, J. M.                               | 1044 640 | Ramsay, G. M.                        |
| Benson, B. S.                                      | 1034 634 | Gatling, R. J.                               | 997 619  | Ramsay, G. M.                        |
| Benson, B. S.                                      | 1039 636 | Gibbs, L. H.                                 | 1024 630 | Redmond, O.                          |
| Benson, B. S.                                      | 1040 638 | Giles, J.                                    | 1029 632 | Reynolds, J.                         |
| Benson, B. S.                                      | 1041 638 | Goddard, S. F.                               | 1032 633 | Reynolds, S. G.                      |
| Bibb, W. C.  | 1026 631 | Goodell, J. W.                               | 1002 621 | Rose, R. E.                          |
| Bigelow, A.  | 1004 622 | Gray, J. R.                                  | 998 620  | Rider, Z.                            |
| Bonham, G. W.                                      | 1010 625 | Gray, N. A.                                  | 1011 625 | Romaine, R.                          |
| Bostwick, C. B.                                    | 1038 636 | Gray, N. A.                                  | 1016 628 | Saladee, C. W.                       |
| Brott, G. F.                                       | 1032 633 | Gwynn, S.                                    | 1005 622 | Shaw, P.                             |
| Brown, E.  | 1037 635 | Hall, A. W.                                  | 1011 625 | Shotwell, S. L., and Hicks,<br>S. R. |
| Brutschke, F.                                      | 1042 638 | Hawkins, J.                                  | 1002 621 | Simonson, G.                         |
| Burridge, T. H.                                    | 1005 622 | Heydrick, W. H. H.                           | 1014 627 | Smith, J. K.                         |
| Cowing, H.   | 995 619  | Heydrick, W. H. H.                           | 1025 631 | Speer, J.                            |
| " " (R)  | 996 619  | Hope, J. D.                                  | 995 619  | Spencer, D. B.                       |
| Creuzbaur, R.                                      | 1023 630 | Hyde, O.                                     | 1033 630 | Standish, P. H.                      |
| Curtis, J.   | 1012 620 | Hyde, O.                                     | 1027 631 | Stark, T. C.                         |
| Darby, T. C.                                       | 1036 635 | Johnson, C. F. Jr.                           | 1013 626 | Stevens, A. J.                       |
| Delavigne, J. C.                                   | 1016 628 | Jones, E. C.                                 | 999 620  | Stewart, L.                          |
| Evans, J. W.                                       | 1002 621 | Jones, J.                                    | 1001 621 | Stoddard, W.                         |
| Evans, J. W.                                       | 1030 632 | Kellogg, H.                                  | 999 620  | Stone, R.                            |
| Eyth, M.   | 1017 928 | Kennedy, A. L.                               | 1022 630 | Taveau, A. L.                        |
| Fawkes, J. W.                                      | 999 620  | Klinge, P.                                   | 1000 621 | Thayer, A. P.                        |
| " " (R)  | 1000 621 | " " (R. L.)                                  | 1001 621 | Tice, I. P.                          |
| Fawkes, J. W.                                      | 1003 622 | Knapp, J. G.                                 | 1020 629 | Tounley, E. A. and Fried-            |
| Fawkes, J. W.                                      | 1010 625 | Locher, C.                                   | 1010 628 | rich, E. S.                          |
| Fogarty, J.  | 1030 632 | Lynn, M. N.                                  | 1021 620 | Ward, W. E.                          |
| Fogarty, J.  | 1033 633 | Lyna, M. N.                                  | 1025 631 | Wilkins, S. B.                       |
| Fogarty, J. H.                                     | 1042 639 | McCray, T. H.                                | 1036 635 | Willard, G.                          |
| Fowler, J. Jr.                                     | 1007 623 | McCray, T. H.                                | 1036 635 | Wilson, J. T.                        |
| Fowler, J. Jr.                                     | 1007 623 | McDonald, F. J.                              | 1028 631 | Woodruff, T. T.                      |
| Fowler, J. Jr. and Greig,<br>D.                    | 1007 623 | McGaughey, A. E. and<br>S. N.                | 1003 622 | Woolfolk, L. B.                      |
| Fowler, J. Jr.                                     | 1009 624 | McGaughey, A. E.                             | 1027 631 | Woolfolk, L. B.                      |
| Fowler, J. Jr. and Worby,<br>W.                    | 1009 624 | McLean, J. W.                                | 1003 622 | Vost, G. W. N.                       |
| Fowler, J. Jr. Burton, R.                          |          | Marquis, J.                                  | 1016 628 |                                      |

## STEAM.

**EDMUND C. BELLINGER**, Barnwell, S. C. Steam Plows. Nov. 19, 1853.

Claim. The peculiar construction of the described agricultural steam apparatus with the arrangement of the several parts, particularly the mode of carrying the machine by a revolving band working over pulleys &c., placed on carriages parallel to each other on opposite sides of the field, for plowing, harrowing, planting, mowing, &c., by the agency of steam.

**7,415. JOSEPH D. HOPE**, Philadelphia, Pa. Steam Plows. June 4, 1850.

Claim. 1. The spur-wheel  $s$ , so constructed and arranged within the periphery of the driving-wheel that it may be made at pleasure to pass its trowels through the holes or notches in the tire into the surface of the ground when under compression, and thereby grapple and gain adhesion to the ground, substantially in the manner herein set forth.

2. The combination of parallel bars  $P P'$  to regulate the breadth of each separate furrow with the adjusting curve  $a'$  for determining the horizontal direction of the draft, so as to adapt the amount of work done by a single traverse of the engine to the adhesive power of the wheels when applied to the particular kind of land under cultivation, substantially as herein set forth.

3. Preventing the choking of the plow by means of the recurved point  $E$  of the mold-board acting to turn aside and guide backward the choking material, as herein set forth.

4. The manner of attaching the harrow to the locomotive so that the conductor may at pleasure, by turning a crank, reverse its advancing sides for the purpose of freeing the harrow-teeth from choking materials, in the manner substantially as herein set forth.

**7,795. HENRY COWING**, New Orleans, La. Steam Plows. Nov. 26, 1850.

Claim. 1. The inclined colters so arranged as to throw out the plows without breaking when they meet with an obstruction, in the manner and for the purpose set forth.

2. The apparatus shown at  $n m$ , Fig. 5, for setting the frames for hillin in the manner above specified.

**1,041. H. COWING**, New Orleans, La. Steam Plows. No. 7,795. Nov. 26, 1850. Reissued Sep. 11, 1860.

Claim. 1. The combination of the driving shaft  $d$ , and pinions  $e$ , the counter shaft  $f^1$ , and pinions  $f$ , the short shafts  $g$ , and the pinions  $i$ , with the internally geared spur wheels  $h$ , when arranged and operating with plows, substantially as and for the purpose set forth.

2. Raising and lowering the plows, substantially in the manner described, by an apparatus operated by the power of the engine when the

said apparatus is under the control of the engineer.

3. A projecting frame at the rear of the engine, when the same is arranged to overhang the plows and is sufficiently elevated to permit them to be raised above the axle of the supporting wheels, or the lowest position of the frame, whereby the engine is enabled to pass over obstructions with facility.

4. The combination, in a steam plow, of a hoisting apparatus, operated by the power of the engine, with an overhanging frame, substantially as described, for the purposes set forth.

5. The steering apparatus, arranged and operating as described, in combination with the frame gearing and plows herein described, for the purpose set forth.

6. The combination of the steering wheel  $c$ , driving wheels  $b$ , overhanging frame  $r$ , and gangs of plows I, II, III, when arranged and operating substantially as described for the purpose of cultivating between the rows of standing crops.

7. The combination of the straining frame  $n$ , and adjusting screws  $n^3$ , with the hinged side pieces  $m^2$ , of the plow frame, substantially as described for the purpose set forth.

8. The ratoon or stubble cutter  $C$ , Fig. 5, applied substantially in the manner set forth, in combination with a gang of plows.

9. The plate  $Y$ , applied at the lower part of subsoil plows, substantially as explained, for the purpose of elevating the subsoil previous to turning.

**10,646. PHILANDER SHAW**, Abington, Mass. Steam Plows. Mar. 14, 1854.

Claim. The above-described method of hanging and operating the spades  $D D$ , &c., they being applied in one or more vibrating sets to a rotary frame,  $C$ , each spade being hinged to the frame and made to turn through the sector of a circle, and provided with stops  $g h$  and a stud,  $N$ , to act against a stationary cam,  $O$ , as described, the whole being applied together and to a carriage or frame,  $A$ , and made to operate so as not only to dig into and raise earth, but to perform the office of impelling along on the ground the whole machine, substantially as specified.

**12,447. ROBERT ROMAINE**, Montreal, Canada. Steam Plows. Feb. 27, 1855.

Claim. The rotary toothed cylinder (or digger) followed immediately by the seed-sower and roller, as described.

**16,476. RICHARD J. GATLING**, Indianapolis, Ind. Steam Plows. Jan. 27, 1857.

Claim. A series of spades having a combined vertical reciprocation and spiral twist through the agency of a system of cams and levers ar-

ranged and operated substantially as specified.

**16,807. GEORGE M. RAMSEY,** New York, N. Y. Steam Spades. Mar. 10, 1857.

Claim. 1. The alternate spades J, in combination with the double-crank shafts I, constructed, arranged, and operating substantially in the manner and for the purpose set forth.

**16,937. DAVID B. SPENCER,** Parkersburg, Va. Steam Plows. Mar. 31, 1857.

Claim. 1. The use of the single wheel at the rear of the carriage as the sole driving-wheel, and running in the bottom of the furrow turned by the plow, substantially in the manner described.

2. Hanging the two supporting-wheels eccentrically on the same turning or rocking axle, so that, whether the machine runs upon level ground or with one wheel higher or lower than the other, the frame and boiler shall still preserve their horizontal positions, as herein set forth.

**18,446. JOHN R. GRAY,** Fair Play, Wis. Steam Plows. Oct. 20, 1857.

Claim. 1. The screw shafts E E', (two or more,) provided with right and left threads or flanges  $\alpha$ , and arranged and operated substantially as shown or in an equivalent way, for the purpose of propelling the machine both in a direct line and laterally, as described.

2. The adjustable wheels N N, when arranged and applied to the machine as shown, for the purpose specified.

3. Connecting the arms Z Z to the bars W, which are operated or actuated by the lever T, in combination with the shares A' A', attached to the swinging arms Z Z, in the manner and for the purpose set forth.

**18,468. E. G. OTIS,** Yonkers, N. Y.

Steam Plows. Oct. 20, 1857.

Claim. 1. Attaching the plows N to the chains  $\&$  herein shown and described, whereby they may be adjusted more or less obliquely to correspond with the oblique position of the furrows, and also to allow for the contraction of the chain in passing around the pulley.

2. The teeth s attached to sleeves r on the tie-rods m, and provided with the springs u, substantially as shown, for the purpose specified.

**18,479. W. E. WARD,** Port Chester, N. Y. Steam Plows. Oct. 20, 1857.

Claim. 1. The mode of operation of the mechanism, substantially as herein described, for imparting the cutting action to the spades, as set forth.

2. The mechanism for tilting the spades, substantially as described, in combination with the mechanism for giving the cutting action to the said spades, substantially as described.

3. In combination with the spades, operated substantially as described, the shield plate, substantially as described, for aiding in disintegrating and reversing the slices as they are thrown up by the spades, as set forth.

4. In combination with the spades, operated substantially as described, the yielding or springing part of the levers for imparting the digging or cutting action to the spades, and the yielding or springing part of the tilting levers as set forth, and for the purpose of preventing the mechanism from being broken when the spades meet with any obstruction, such as stones.

**18,596. HENRY MOESER,** Pittsburgh, Pa. Steam Plows. Nov. 10, 1857.

Claim. 1. The arrangement and combination of the transverse beam F, connecting-links  $\alpha$   $\alpha$ , chains H H driving pulleys K K pulleys J J', and wheels G G or any other equivalent devices, when operating in relation to each other and to the steam carriage, substantially as herein fully set forth, and for the purpose described.

2. The arrangement of the guiding bar N, supported on the transverse beam F, and the forks f f on the plow carriages, or any other arrangement substantially the same, for the purpose of guiding the plow carriages as described.

**18,749. EDWARD C. JONES,** Pittsburgh, Pa. Dec. 1, 1857.

Claim. 1. The arrangement of the hinged beams C C and springs D D' or any equivalent device therefor, when constructed and operating substantially as described.

2. The coupling of the plows to a front bar, G, and back bar, H, as described, which bars can be raised or lowered by means of the rack-rods E E' and segment-levers F F, or any equivalent means in their place, substantially in the manner and for the purpose herein set forth.

**18,853. HIRAM KELLOGG,** McHenry, Ill. Steam Plows. Dec. 15, 1857.

Claim. The construction of the double-pointed mattock-like revolving digging-shovels arranged together in pairs at right angles to each other, as in Fig. 4, and having passing through their centers a shaft or axle, as in Fig. 3, and in arrangement and operation with a revolving scatterer c c e d d d, attached to an adjustable graduating framing, e e e e f f, and in combination with an adjustable sliding hopper or seed-fountain, J J, as described, and through all of which devices, forming an individual or unity of machine, the soil is dug up pulverized, and scattered, and the seed or grain is deposited and covered up to a greater or less depth in one operation of the machine, substantially as set forth.

**19,189. JOSEPH W. FAWKES,** Christiania, Pa. Steam Plows. Jan. 26, 1858.

Claim. The employment of the barrel-shaped wheel or driver E, constructed with spurs  $\&$   $\&$ , in the manner described, in combination with guiding wheels c c and screw D, and segmental rack b for the purpose of drawing the

plow frame and plows described, in the manner set forth in the foregoing specification.

**855. J. W. FAWKES,** Plows. Reissued Nov. 22, 1859.

Claim. 1. The employment in combination with the locomotive of a bilge shaped driving wheel, substantially as set forth.

2. I do not claim broadly the invention of movable spurs, but I claim the combination of the sliding spurs K K, with the bilge shaped driving wheel E, as herein shown and described.

3. The arrangement of the adjustable frame, plows, gage wheel, driving wheel, engine, boiler and guiding wheels, as herein shown and described.

**19,215. WILLIAM STODDARD,** Lowell, Mass. Plowing Machines. Jan. 26, 1858.

Claim. Constructing the plows X with an adjustable depth-gage, e and s, attached to the mold-board thereof in the manner described, when such plows are connected (for operation) to an endless chain or band, in combination with the flexible arms J, which carry the plows X and band W, essentially in the manner and for the purposes fully set forth and described.

**19,427. PEIRCE KLINGLE,** Washington, D. C. Steam Plows. Feb. 23, 1858.

Claim. The combination of the driving-wheels B B and plows P P with the steering-wheels D D, the whole being constructed, arranged, and operated substantially in the manner and for the purpose herein set forth.

**194. (A. I.) to 19,427 Steam Plows.** Mar. 9, 1858.

Claim. The placing of clearers S S, in connection with the off bearing-wheel, B, of my steam-plow, in such a manner that the one will fill back the furrow that the other has opened, they being arranged, constructed, and operated substantially in the manner and for the purpose herein described and set forth.

**20,122. G. W. N. YOST,** Cincinnati, Ohio. Gang Plows. Apr. 27, 1858.

Claim. 1. The torsion-spring above described, in combination with the plowshares, for the purpose of allowing a single share to swing backward in passing stones, and then automatically to replace itself in working position, thus avoiding the breaking of the plow or stopping of the team, substantially as set forth.

2. The use of the team-guide for managing the team, so as to obviate the necessity of employing many drivers, substantially as described.

3. The use of the team-shade, in combination with the team-guide, for sheltering the team from the heat of the sun or from rain, substantially as set forth.

**21,167. JOSEPH JONES,** Wilmington, Del., assignor to E. and J. Jones, Jr. Plows. Aug. 10, 1858.

Claim. The combination of the before-described gear and levers, when constructed and arranged for operation conjointly, in the manner as and for the purposes set forth.

**21,661. JAMES W. EVANS,** New York, N. Y. Steam Plows. Oct. 5, 1858.

Claim. 1. The combination and arrangement of the main shaft G and cranks H I, forming part thereof, with the main axle E and driving-wheels D, by means of screw-shaft M, and the bevel wheels K and L, and the screw-thread N upon the axle, so that by the action of the piston-rod 15, attached to crank H, the reciprocating action is communicated to the plows Y Y, and at the same time the machine is moved forward in due proportion to the stroke of the plows by the rotation of wheels D, and thereby cutting a continuous furrow by a rectilinear and direct thrust of the plow or plows.

2. The construction and arrangement of the supports or guides-pieces P P, the pairs of vertical rods Q Q' Q' Q', operating by means of the eccentric V, and the lever and arm T W, in the manner described, for guiding, securing, elevating, and lowering the plows.

**22,848. SAMUEL K. BASSETT,** Galesburg, Ill. Steam Plows. Feb. 8, 1859.

Claim. Having the wheels B of the truck A attached to separate axles C, with pivoted or swiveled inner bearings b, the outer bearings of the axles being fitted in guides D and the outer ends of the axles being connected by rods E, with racks F into which the pinions of the shaft G gear, the shafts being connected by the endless chains J passing around cone pulleys I, placed in reverse positions on the shafts, the whole being arranged to operate substantially as shown and described, to facilitate the guiding and turning of the machine, as set forth.

**23,767. J. W. GOODELL,** East Wallingford, Vt. Steam Spading Machines. Apr. 26, 1859.

Claim. 1. The wheels H, provided with spades I, in connection with the cleavers J and the rotating plates h, arranged for joint operation, substantially as and for the purposes set forth.

2. The attaching of the frame A, which contains the wheels H, to a traction engine by means of a universal joint B, in connection with the gearing E D and shaft C, substantially as shown, whereby the frame and wheels H are allowed to conform to the inequalities of the ground, and the working parts driven direct from the engine.

**25,826. JAMES HAWKINS,** Wilkins, Pa. Steam Plows. Oct. 18, 1859.

Claim. The arrangement of the frames A and F, levers J and E, easter wheels G and I, drivers B, crank shaft S, cutter P, toothed cylinders C and H, levers D and N, operating conjointly as set forth for the purpose specified.

**26,279. ALBERT E. McGAUGHEY and SAMUEL N. McGAUGHEY,** Wastedo, Minn. Steam Plows. Nov. 29, 1859.

Claim. 1. The plows S attached to radial arms m, or oscillating shafts k, and arranged with the pinions n, racks T, ratchet toothed hubs l, and stop rods r s, to operate substantially as and for the purpose set forth.

2. In combination with the plows S, arranged and operated as described, the rakes or harrows V, attached to the bars i i<sup>1</sup>, for the purpose specified.

**26,397. JAMES W. MCLEAN,** Indianapolis, Ind., assignor to himself and Edwin May, same place. Steam Plows. Dec. 6, 1859.

Claim. The arrangement of the plows h, gearing V W X, cutters b, lever T, and connecting rod S, in combination with the universal jointed shaft U M M, when operated in connection with the steam engine, substantially as set forth.

**26,422. J. W. FAWKES,** Christiana, Pa. Steam Plows. Dec. 13, 1859.

This invention consists in a peculiar arrangement of mechanism employed for elevating the plow frame, whereby the latter may be actuated so as to incline the plows, and the mechanism stopped automatically when the frame and plow are sufficiently elevated; also, in combination with the first named feature, of a holding pawl and brake to facilitate the adjustment of the plows to their work.

Claim. 1. The arrangement of the clutch r, levers M N, rod O, lever b<sup>1</sup>, and button or projection c<sup>1</sup>, on the chain F, whereby the chains F F are wound on the pulleys e e of the shaft E, and stopped automatically at the proper time for the purposes set forth.

2. In combination with the above, the brake R and pawl d, when applied to the machine to operate simultaneously, as and for the purpose described.

**27,242. GEORGE W. RAMSEY,** New York, N. Y. Steam Plows. Feb. 21, 1860.

The swing frame F extends forward to the front end A, and also extends back a sufficient distance to receive the fixed shaft I, which forms a part of the said frame, and upon which the two plow cylinders J J with spiral cutting blades are held in proper position and made to revolve by the endless chain k working upon the chain wheels L on the outer ends of the two cylinders and also upon the outer sides of the travelling wheels B.

Claim. The arrangement of the plow cylinders J J, driving wheels, guide wheel, boiler, and engines; the whole being constructed, operated, and operating as shown and described

**28,732. ALBERT BIGELOW,** Hamilton, Upper Canada. Steam Plows. June 19, 1860.

Claim. 1. The arrangement, with the main

supporting frame N<sup>1</sup>, and with the endless chain D, and plows C C C, of the auxiliary radius frame Q R, wheels F, transverse shaft O, and longitudinal shaft A, substantially in the manner and for the purposes described.

2. The arrangement of the chains E, radius frame Q R, and adjusting mechanism G G<sup>1</sup> G<sup>2</sup> G<sup>3</sup>, substantially as and for the purposes set forth.

**28,801. L. B. WOOLFOLK,** Nashville, Tenn. Steam Plows. June 19, 1860.

Claim. 1. The arrangement of the shaft C, the loose pinions G G, and the clutches H H, with the driving wheels E E, the whole being constructed and arranged substantially as herein described.

2. The arrangement of the wheel T, having its axis out of the line of attachment to the frame S, in the journal at U, so as to answer and adjust itself to the movements of the driving wheels, substantially as set forth.

3. The employment of the wheel T, having its shank z, turning loosely in the journal box at W, and provided with an oblong d, confined between the springs a a, in combination with the lever x, the rack bar w, and the segments y y, substantially as set forth.

4. The arrangement of the friction wheels m m, the shafts s s t t, with the driving wheels E E, and shaft C, substantially as represented.

**28,933. L. B. WOOLFOLK,** Nashville, Tenn. Steam Plows. June 26, 1860.

Claim. 1. The arrangement of the cylinder S, provided with bevel wheel R having the shaft C, passed through it eccentrically, shaft I, springs g g, bevel wheels f f, sleeves i, pinion G, rim F, wheels E, and plows W, the whole being constructed in the manner and for the purpose described.

2. In combination with the above, the cylinders S S<sup>1</sup>, sleeve u, bevel wheel R, and shaft C, as described.

**29,358. THOMAS H. BURRIDGE,** St. Louis, Mo. Steam Plows. July 31, 1860.

Claim. The combination of the gang of plows S S S, with the described drum and engine, in the manner described.

**29,413. JESSE SPEER,** Hazlehurst, Miss. Cultivators. July 31, 1860.

The object of this machine is in the cultivation of cotton and other things that are planted in rows, in that manner known as "drilling," and when the plant is small, from its uses, the rows can be divided and made into hills, leaving the plants to grow in uniformly separated bunches or hills.

Claim. The combination of the wheel a, hoe h, and bar I, arranged and operated as or substantially as and for the purpose set forth.

**29,782. STUART GWYNN,** New York, N. Y. Spading Machines. Aug. 28, 1860.

Claim. 1. The employment, in combination with the spades, and for operating them,

of double cranks, arranged to move in reverse directions, and giving a compound action to the spade or spades, essentially as specified.

**2.** Providing the spade stock or holder with a spring stop or stops, so constructed and arranged as to be capable of being thrust away or to one side of the spade in its descent or digging stroke, to avoid striking a stone or other intervening obstacle calculated to injure it, and permitting of the yield or rise of the spade therefrom, substantially as shown and described.

**3.** Constructing and arranging the spade stock or holder, as shown and described, with a twist screw or helical groove, or the equivalent thereof, so that the spade, in its reciprocating or longitudinal travel, shall, at a certain point or points thereof, be turned and made to assume different positions relatively to the line of cut, essentially as set forth.

**4.** Causing the spade, after it has been pushed into its stock or holder by meeting with an obstacle in its descent, to be automatically returned to its proper position for further work, during the retreat of the holder, by means of the same device or pin which, in connection with the helical slot in the stock, serves to turn and alter the position of the blade of the spade relatively to the line of cut, essentially as described.

**5.** Constructing the spade or spade blade with an articulation joint, for action when in the soil or when freeing itself therefrom, and, during the backward thrust or throw of the spade, to avoid injury or breakage from stones or other like obstacles in the soil.

**30,884. WILLIAM H. H. MILLEN,** Littleton, N. H. Steam Plows. Dec. 11, 1860.

Claim. **1.** The arrangement of the levers G G, sliding pinions f f, on shaft F, and the gearings I I k k, on the shafts F J, essentially as shown, whereby the plows K<sup>1</sup> may be rotated or stopped instantly at the will of the operator or attendant.

**2.** The arrangement of the levers R R, with pawls t and lips u attached, the ratchet Q on the hollow shafts N N, the clutches p q, gearing P on the shafts O, on which the hollow shafts N are placed, and the ropes or chains u n attached to the cross bar M of the arms k, essentially as shown, for the purpose of elevating the shaft J and its plows K<sup>1</sup> when desired.

**30,986. JOHN REYNOLDS,** New York N. Y. Steam Plows. Dec. 18, 1860.

Claim. **1.** The arrangement and combination of the plow frame A with plows A<sup>1</sup> vertical slotted standards c, link d, rock shaft e f, grooved disk crank g link d<sup>1</sup> chains, or cords J J<sup>1</sup> and windlass shaft K, substantially in the manner and for the purpose described.

**2.** The arrangement and combination of the fast spur wheel R, sliding lever clutch T t t and loose wheels C u u v v, substantially in the manner and for the purpose described.

**3.** The arrangement of the plow frame A, with the plows A<sup>1</sup> boiler D, engine cylinder D<sup>1</sup>

wood receptacle F F<sup>1</sup> F<sup>2</sup> water tank E, specified mechanism for throwing the engine in connection with the carriage B, and the mechanism specified for supporting and adjusting the plow frame and plows, the whole constructed and operating together in the manner described.

**32,025. JOHN FOWLER, JR.** Leeds, Eng., assignor to William Penn Tatham, Philadelphia, Pa. Machines for Cleaning Lands. Patented in Eng. Sep. 8, 1856. Apr. 9, 1861.

This invention relates to an improvement in plows which are operated by steam power and is applied to a machine having two gangs or plows, attached to and carried by a tilting frame which vibrates on an axis, so that when one gang is brought down into action the other is lifted up clear of the land. The invention consists in combining with the above a steering apparatus, by a mechanism which enables the operator while riding on the machine to change at will the direction of the motion in plowing.

Claim. Combining the pulley on the anchor carriage, which receives motion from the engine by the pulling of the plows or other implements, with the drum that operates the anchor rope by means of the intermediate mechanism described, or any equivalent therefor, as described and for the purpose set forth.

**32,026. JOHN FOWLER, JR.** Leeds, Eng., assignor to William Penn Tatham, Philadelphia, Pa. Machines for Plowing Lands by Steam. Patented in Eng. Sep. 8, 1856. Apr. 9, 1861.

This invention relates to that class of machines for plowing by steam power in which the locomotive engine moves at intervals along one edge of the field, and ropes pass from the engine to and around a pulley attached to an anchor moved at intervals along the opposite edge of the field. The object of the invention is to move the anchor by the power of the engine at the opposite of the field, by combining with the pulley on the anchor carriage around which the rope passes to operate the plows, and with the drum of a rope connected with an anchor an interposed mechanism to operate the said drum at the required intervals to advance the anchor carriage by the motion of the pulley derived from the engine.

Claim. Combining with the central pair of sustaining wheels and with frame which carries the two gangs of plows or other tilling instruments a steering apparatus, substantially as described.

**32,027. JOHN FOWLER, JR.** Leeds, Eng. and **DAVID GREIG,** same place, assignors to William Penn Tatham, Philadelphia, Pa. Machines for Plowing and Tilting Lands. Patented in Eng. Feb. 28, 1856. Apr. 9, 1861.

Claim. **1.** Mounting two gangs of plows or other tilling instruments in suitable frame-work and connecting them with a pair of sustaining

and gauging wheels interposed between the two gangs, substantially as described when this is combined with the pulling ropes or chains and suitable means of attachment thereto substantially as described, so that by the operation of an engine on one side of a field and suitable anchoring apparatus at the other side, the said instruments can be drawn across the field alternately in opposite directions, as described.

2. Mounting the frame which carries the two opposite gangs of instruments on a central axis so that it may be tilted thereon, substantially as described, in combination with the mode of connecting the ropes or chains with the said tilting frame, or the equivalent thereof, on opposite sides of the axis of vibration, as described so that by reversing the pull on the ropes the frame shall be tilted to lift one gang out of action at the end of each course and draw down into action the other gang for the return course, as set forth.

**32,153. JOHN K. SMITH,** Trenton, N. J. Steam Plows. Apr. 23, 1861.

Claim. 1. The arrangement of the segments L' M, on the bolster-plates F N, of the axles of the wheels C E, the cords c f the pulleys c d, and wheel K, of lever L, and the wheels J J, on axle G, for the purpose of guiding or turning the machine, as set forth.

2. The arrangements of the ratchets O' on axle G, cord i', passing over the pulleys j', and attached to frame B, in connection with the frames A B, connected together as shown whereby the inner or front end of frame B, and consequently the spade cylinder may be elevated when desired.

3. The employment or use of the weight T, suspended on the axle s in connection with the tangs l of the spades R and the springs m, all arranged to operate as and for the purpose set forth.

**32,437. S. L. SHOTWELL,** Ottawa, Ill. and **S. R. HICKS,** North Hamstead, N. Y. Steam Plows. May 28, 1861.

Claim. 1. The arrangement of the additional steam cylinder and piston in connection with the propelling engineer engines and the oblique series of pulleys h, carrying independent or disconnected plows when the whole is constructed and operated substantially in the manner as and for the purposes set forth.

2. The arrangement of the series of short links t z, in combination with the series of independent plows or gangs, and the oblique bar E'', mounted on wheels F, for the purpose of giving the plows a free motion in passing obstacles and yet preventing said plows from falling sidewise, substantially as specified.

3. The above described, peculiar arrangement of crank-wheels J J, loose pinions L L, sliding clutches M M, crank-shaft K, in combination with the diving wheels D D, substantially as set forth.

4. The arrangement of the plow frames o

and levers g, applied to the beams D', to operate as and for the purposes set forth.

**32,652. C. W. SALADEE,** Pine Island, Tex. Steam Plows. June 25, 1861.

Claim. 1. The combination of the several parts shown and described, for the purpose of combining in one machine the facilities of plowing, sowing the seed, rolling and harrowing at one operation, as well as to perform either of these objects separate and apart from the others.

2. The peculiar construction and arrangement of the plows x and colters Y, Fig. 1, in combination with the angle iron ring brace z, in the manner and for the purpose shown and described.

3. Extending the points z of the colters Y Y, Fig. 1, out beyond the line or circle described by the points of the plows, in the manner and for the important purpose set forth.

4. The radius bars O O, Fig. 1, but more particularly shown in Fig. 3, shaft Q Q, shifting pinions S S, in combination with the crank-shaft L and revolving drums C C, for the purpose of regulating the advance of the machine in proportion to the cut made upon the ground at each revolution of the plows, and for the additional purpose of throwing out of gear either one or both of the drums C C, to facilitate the turning of the machine, as shown and described.

**32,809. JOHN FOWLER, Jr.,** London, Eng., assignor to William Penn Tatham, of Philadelphia, Pa. Machines for Plowing and Tilling Lands. July 9, 1861. Patented in Eng. July 14, 1858.

This invention relates to that class of machinery for plowing by steam in which a locomotive steam engine moves at given intervals along one edge of the field, and ropes pass from the engine to and around a pulley in an anchor, which is moved at intervals along the opposite edge of the field, the said ropes being attached to plows to draw them across the field alternately in opposite directions, and the invention consists in a method of mounting two drums on the plows, on each of which a portion of the hauling rope is wound, so that they will take up the slack of the rope behind them, the drums being usually turned by manual power.

Claim. Mounting on plows or other tilling instruments an apparatus for taking up the slack rope by the pull of the rope drawing the plows or other tilling instruments, substantially as described.

**32,810. JOHN FOWLER, Jr.,** Having, and **WILLIAM WORBY,** Ipswich, Eng., assignors to William Penn Tatham, Philadelphia, Pa. Machines for Tilling Land by Steam. July 9, 1861. Patented in Eng. July 10, 1856.

The carriage can be easily moved backwards or forwards by means of the wheels, but at the same time they sink into the ground to a sufficient depth to present the required resistance

to the lateral strain of the rope in drawing the tilling instruments.

Claim. Mounting an anchoring carriage on discs or wheels sufficiently thin at the periphery to cut or sink into the land, substantially as described.

**32,912. JOHN FOWLER, Jr., Cornhill, County of Middlesex, ROBERT BURTON, Kingsland, DAVID GREIG, New Cross, and JEREMIAH HEAD, Newcastle-on-Tyne, Eng., assignors to W. P. Tatham, Philadelphia, Pa. Drums or Pulleys to Prevent Ropes from Slipping in Machinery for Plowing and Tilling Land by Steam. July 23, 1861. Patented in Eng. Jan. 24, 1859.**

This invention consists in the employment of a winding drum, so constructed as to hold the rope firmly and draw the plow steadily forward, notwithstanding the rope only passes partially around the drum. On the periphery of the drum is mounted a series of levers turning on centres, and so placed that, as the rope comes up to the drum, it rests on the ends of the levers, and the pressure of the rope causes their ends to move in towards the center of the drum. Immediately beyond the ends of the levers a flange is formed on the drum, and the axes on which the levers turn, being nearer the centre of the drum than the point at which the rope enters on the drum, causes the rope to become jammed between the ends of the levers and the flange on the drum.

Claim. The mounting on a hauling or winding drum a series of levers or instruments on axes or centres, in such a manner that the motion of the levers or instruments caused by the strain or pressure of the rope will nip the rope, substantially as described.

**33,882. J. W. FAWKES, Decatur, Ill. Steam Plows. Dec. 10, 1861.**

Claim. 1. The combination for the purpose of plowing, ditching, &c., by steam, of a stationary and traction engine, windlass attachment and plow frames, substantially as set forth.

2. The peculiar arrangement of the geared drum B, shifting wheels R R, and geared rollers Z' Z'', which form a windlass, substantially as shown and described, for the purpose of readily changing the engine from a traction to a stationary one, and *vice versa*, when said windlass and engine are used in combination with plows, for the purpose specified.

3. The adjustable draught bar C' of the frame B', arranged substantially as shown, to admit of the adjusting of the frame B', for the purpose specified.

**34,049. G. W. BONHAM, Henry, Ill. Pulverizers and Seeding Machines. Jan. 7, 1862.**

Claim. 1. The pulverizers v, arranged on the shaft d, in respect to each other, when constructed and operating in the manner and for the purpose specified.

2. Arranging the seed box c, in the frame a,

on pivots k, so that the driver can throw the feeder in and out of gear by the screw l, arranged at the side of his seat, as set forth.

3. Attaching the front truck to the front part of the frame a, and arranging it in relation thereto, so that the dip of the pulverizers can be regulated by the screw g and handle h, in front of the driver's seat, as set forth.

**35,261. S. G. REYNOLDS, Bristol, R. I. Power Spading Machines. May 13, 1862.**

Claim. 1. The combination of the series of cranks m, set in a curved or spiral line, and the shackle bars t, or their equivalents, with the spade-carriers O, for the purpose of giving the required motion to the spades, as shown, to enter the ground, pulverize the soil, and clear themselves, as described.

2. The yielding spade-carriers, operating as set forth, for the purpose specified.

3. In combination with a power spading machine, the pivot K<sup>2</sup>, placed within the axis of the bearing wheels and operating as set forth.

4. The combination of a mechanical spading machine with a harrow, when the harrow follows the machine, and is operated by cranks, in the manner substantially as set forth and for the purpose specified.

**38,260. A. W. HALL, St. Louis, Mo. Steam Plows. Apr. 21, 1863.**

Claim. The employment of a steam engine or its equivalent motive power, in combination with a series of two or more traction pulleys f f', to be used in connection with a rope extended across and properly secured at each end of the field; all being constructed and arranged to operate in such manner that the said motive power may be made to draw itself and the gang of plows attached across the field, substantially as herein described and represented.

**40,403. N. H. GRAY, Cleveland, Ohio. Steam Plows. Oct. 27, 1863.**

Claim. 1. The arms H' and blades K and M, when constructed and arranged substantially as specified.

2. The combination of the arms H', as constructed with the compound crank figure 5, as and for the purpose herein set forth.

3. Attaching the arms H to the crank wrist by means of the stationary stud I, removable cutter K, and wedge L, or their equivalents, substantially as shown.

4. The drag V V, constructed and operating substantially as specified.

**40,717. ANSON P. THAYER, Syracuse, N. Y. Steam Plows. Nov. 24, 1863.**

Claim. 1. The spades, constructed and operating in the manner set forth.

2. The couplings G G and I I, operating in combination with the wheels E E and L L and shafts F F, the screws S S and slotted posts r r, for the purpose of raising and lowering the cylinder z and spades u in a vertical line, and admitting the gearings E E and L L to be in a working position at all points as described.

3. The wheels Q, in combination with the shaft D and counter shafts P P, for the purpose set forth.

4. The slotted frame h or guides, in combination with the grooved pulleys f and tongue g, for the purposes described.

**44,077. JAMES CURTIS,** Chicago, Ill.  
Steam Plows. Sep. 6, 1864.

Claim. 1. A series of cutters fixed on and rotating with a shaft so as to cut the earth from the bottom of the furrow towards the surface, carry the earth taken up at each cut over the cutters and deposit it in a reversed position, or turned over behind the cutter, substantially in the manner described.

2. The combination of cleaners with the cutters when the cleaners are hinged near the edge of the cutters and forced over their concave surfaces by adjustable guides, substantially as and for the purpose described.

3. The combination of guides or rollers, adjustable on the supporting arms of the cutter shaft, with the cleaners, with or without cams thereon, to discharge the earth from the cutters at the point desired, substantially in the manner described.

4. The combination of the steering mechanism with the mechanism for elevating or depressing the cutter shaft, so as to steer the carriage without changing the depth of furrow, or to regulate the depth of cutting without or whilst changing the direction of plowing, substantially in the manner described.

**45,892. JOHN FOWLER, Jr.,** Cornhill, Eng., assignor to W. P. Tatham, Philadelphia, Pa. Cultivating Land by Steam. Jan. 10, 1865.

Claim. The combination herein described, whereby the power of two engines, situated on distant headlands, is simultaneously employed in giving motion to an agricultural implement by an endless rope, in manner substantially as described, to haul the agricultural implement alternately to and from each headland, as herein explained.

**49,761. CHARLES F. JOHNSON, Jr.,** Oswego, N. Y. Plows. Sep. 5, 1865.

Claim. 1. The plow, running at right angles, or nearly so, to the forward motion of the machine, in connection with the groove or guides, substantially as described.

2. The plow, rotating on an axis, so as to be easily withdrawn from the ground when the stroke is finished, and again presented in a position to enter the ground.

3. The guides or grooves and the cross-head, for the purpose of steadyng the plow, as described.

4. The arrangement of the guides and the cross-head by which the back of the cross-head, after emerging from the guides or grooves, can rise and allow the plow to turn up endwise and be withdrawn from the ground, in the manner described.

**54,224. GIBSON SIMONSON,** Mount Carmel, Ind. Steam Plows. Apr. 24, 1866. Claim. 1. The driving pulley T, slack belt b, and pulley V, in combination with the idler Z, under control of the operator, for starting and stopping the traction wheel of a steam plowing machine.

2. The arrangement of swiveled and internally geared guide wheel D K, capable of being brought into connection with the motor by means of the tiller I, so as to enable the turning of the machine to the right or left by power under the control of the operator.

3. The gravitating plow-frame J, capable of being set in or out of pitch by means of the swiveled and adjustable joint K L.

4. The devices M N P p for the suspension and adjustment of the plows relatively to the main frame.

5. The arrangement of vibrating shaft z, lever p', scalloped pulley q q', pulleys r s and u, shaft i and chain t, or their equivalents, for unearthing the gang of plows in the manner explained.

**57,652. JOHN FOWLER, Jr.,** Cornhill, Eng., **WILLIAM WORBY,** Ipswich, Eng., and **DAVID GREIG,** New Cross, Eng., assignors to William P. Tatham, Philadelphia, Pa. Steam Plows. Aug. 28, 1866.

Claim. In machinery for actuating agricultural implements by steam power, combining the two drums, which alternately wind up and let off the rope by which the agricultural implement is drawn, with the driving shaft of the steam engine, or equivalent motor, by means of the cogged or toothed wheels on the drums, the two sets of pinions on the driving shaft, and the clutches and friction straps, or the equivalents thereof, substantially as and for the purpose specified.

**57,653. ROBERT FOWLER,** London, Eng., and **ROBERT WILLIAM EDISON,** Leeds, Eng. (executors of **JOHN FOWLER, JR.,**) **DAVID GREIG** and **RICHARD NODDINGS**, same place, assignors to William P. Tatham, Philadelphia, Pa. Steam Plows. Aug. 28, 1866.

Claim. 1. In guiding the laying of the rope on to the periphery of the drum in machinery for drawing agricultural implements by steam power, combining the guiding lever for guiding the rope with the flanged drum for drawing and winding the rope by means of the cam and differential wheels, substantially as described, and for the purpose specified.

2. Connecting the guiding lever with the winding drum, so that in addition to having an up and down motion to lay the rope properly on the face of the drum, its guiding end shall be free to revolve around the drum, and thus adapt itself to the angle at which the rope may be hauling, substantially as described.

**59,073. OWEN REDMOND,** Rochester, N. Y. Steam Plows. Oct. 23, 1866.

The main wheel carries excavators operated by a cam and eccentric, and so pivoted that they enter the ground in the direction of their length. The cam is attached to a loaded lever by which damage from stones is avoided.

Claim. 1. The anchors operating substantially as described, or operating them in any manner by which their protrusion and withdrawal are effected in a somewhat similar way.

2. The eccentric F.

3. The movable cam H, lever and weight, or a spring equivalent to the weight.

**63,247. W. H. H. HEYDRICK,** Chestnut Hill, Pa. Steam Plows. Mar. 26, 1867.

Claim. 1. The shaft *k* rotated by the clutch connection or by hand, as desired, and operating by means of a spiral series of cams, to elevate the plow consecutively from the ground, substantially as described.

2. The shaft *o* rotated by the clutch connection or by hand, as desired, and operating by a spiral series of cams to trip the dogs, or their equivalents, consecutively to lower the plows to the ground, substantially as described.

3. The combination, with the cam shafts *k o* of the levers *g* and spring dogs *t* operating substantially as described.

4. The director wheel *b'*, shaft *a'*, and bar *s* constructed and operating substantially as described.

5. The bar *c'*, supporting the cord pulleys and adjustable by devices, substantially as described.

**63,349. GEORGE WILLARD,** New York, N. Y. Steam Plows. Mar. 26, 1867.

Claim. 1. In combination, in a steam or other plow, as described, of the bars which carry the spades and other mechanism for breaking the ground, with the crank shaft for operating the same under the arrangement herein specified, so that the said bars, while alternately and successively moved toward and away from the earth, shall at all times maintain their parallelism with the surface passed over by the machine.

2. The combination, in the movable and adjustable plow-frame of the colters with the vibrating spades and harrow teeth under the arrangement and for operation as set forth.

3. The combination with the stationary plow frame of the movable frame and the cams and their operative mechanism for adjusting the same frame to different elevations above the ground the whole being arranged and operating as herein shown and specified.

4. The herein described mechanism for adjusting the movable plow frame the same consisting of a series of cams arranged and connected with the stationary and movable frame on each side of the plow as described and operated by means of a shaft mounted in the stationary frame and provided with a ratchet and pawl so that the movable frame may be elevated and lowered or held at any desired distance from

the ground substantially as shown and set forth.

5. The method of and means herein described for directing the movements of a steam plow or other like machine that is to say mounting the wheels of said machine upon their axles or shafts in such manner that each wheel and its respective axle may revolve together or independently of each other substantially as and for the purposes set forth.

**68,310. HALBERT E. PAYNE,** Milwaukee, Wis. Steam Plows. Aug. 27, 1867.

Claim. 1. The device for operating a gang plow spader or digger with or without an accompanying harrow or seeder by means of two stationary engines located on opposite sides of the section to be plowed and connected by ropes passing around drums and wound upon and from them in the manner and to the effect set forth.

2. The construction and combination of the drums L M L M, actuated by separate engines but connected and co-operating in the manner set forth.

3. The arrangement on one shaft of the winding drums L M, and the hoisting drum N, substantially in the manner and for the purpose set forth.

4. The arrangement substantially as set forth and described of the gear wheels J and K and their shafts so that power to move the engine from place to place may be transmitted to the bearing wheels through the same mechanism which operates the plow.

5. The derrick R, with its fall rope Q constructed substantially as shown and operating substantially in the manner and for the purpose set forth.

6. The anchor T constructed and operating as set forth and described.

7. The rectangular gang of plows used to plow without ridging and constructed and operating as shown and described.

8. The triangular gang of plows used for ridging and constructed and operating as shown and described.

**75,310. PHILANDER H. STANDISH,** Martinez, Cal., assignor to himself and Oliver C. Coffin. Steam Plows and Cultivators. Mar. 10, 1868.

Claim. 1. A steam plow, having the rotary knives *i i* operating in a horizontal plane and transversely to the travel of the machine, and the supporting arms *k k*, or their equivalents, together with the vertical shafts *h*, the whole constructed and operating substantially as herein described.

2. The movable frame U and the arms *a a*, together with the chains V and capstans W for raising and depressing the plows, substantially as herein described.

3. Operating the plows, when moving in a horizontal plane, directly from the engine by the belt *b*, or an equivalent device, substantially as described.

**76,060. JOHN C. DELAVIGNE**, New Orleans, La. Steam Plows. Mar. 31, 1868.

Claim. 1. The construction and arrangement of the frame A, of any desired size, in combination with the traction wheels D, substantially as shown and described.

2. In combination with the frame and wheels, the shaft H, formed substantially as described.

3. The arrangement and operation of the gangs of plows or cultivators D, and the manner in which the same are controlled, substantially as described.

4. The vertical protecting rods E, substantially as and for the purposes herein described.

**77,031. N. A. GRAY**, Cleveland, Ohio. Steam Plows. Apr. 21, 1868.

Claim. 1. So hanging or jointing the digging apparatus to the locomotive that the said apparatus will have an independent adjustment, whereby it is rendered adjustable according to the unevenness of the ground, in the manner and by the means substantially as set forth.

2. The stay I, rod H, and arm J, arranged in relation to the digging apparatus, as and for the purpose set forth.

3. The arm J, cross-head K, spades or picks L M, and keys R, arranged in the manner and for the purpose substantially as specified.

4. The construction and arrangement of the spades and picks, when combined with the compound crank and operated in the manner and for the purpose substantially as set forth.

**82,538. JOHN MARQUIS**, San Francisco, Cal., assignor to himself and Ole Bergeron, same place. Steam-propeller Plows and Cultivators. Sep. 29, 1868. Antedated Sep. 16, 1868.

Claim. 1. The construction and application of the cutters C C C in form similar to that of a screw, and having bits b b b, at the ends of the blades, substantially as described, for the purpose set forth.

2. The attachment of the said cutters or screws, in a diagonal manner, to the rear portion of the frame at such an angle as to overcome the side draft, and impart to the said cutters, in their rotation, a progressive tendency, substantially as described.

3. The bars or levers I I, for raising and lowering the frame and cutters, and employing the axle as a fulcrum for that purpose, substantially as described.

**82,963. CONRAD LOCHER**, Oroville, Cal. Agricultural Locomotives, with Spading Apparatus. Oct. 13, 1868.

Claim. 1. The application of equalizing gears between the axles of a wagon, so, in turning a curve, each wheel adopts the speed which the curve requires, and receives its propelling motion from the engines, by means of gearing, or their equivalent.

2. The gearing and connection through the king bolts.

3. The spaders, so constructed that they enter the soil like a pick, (nearly vertical,) cut

off a slice like a spade, and turn it over like a plow.

4. Turning the spaders in the same direction as the wagon, thereby assisting locomotion.

5. The combination of the whole, in the way and manner herein set forth.

**84,621. MAX EYTH**, New York, N. Y. Rope Bearing Attachment in Machines for Steam Culture. Dec. 1, 1868.

Projecting from the sides of the cultivator are two arms curved upward, and extending to such a height above the ground as to pass over the growing crops.

Claim. Curving the arms or "outstrippers" a a' upward, so that the same will clear the growing crops, as herein shown and described.

**89,361. EUGENE A. TOUNLEY and EMIL S. FRIEDRICH**, Washington, D. C. Steam Plows. Apr. 27, 1869.

Claim. 1. The frames E E, having the traction-feet or treads a a, coiled springs b, constructed in the manner and for the purpose substantially set forth.

2. The combination of the shafts B B, cams D, or cranks D', with the frames E E, constructed and arranged to operate in the manner substantially as described.

3. The combination of the lever G', connecting-bar h, link h', with shafts g g, and caster-wheels F F, arranged to operate substantially in the manner and for the purpose as described.

4. The combination of the lever H'', shaft H, segmental pinion G'', with prooved wheels G G, shafts g g, and caster wheels F F, arranged to operate in the manner and for the purpose substantially as described.

5. The combination of the lever K, having pawls k', spring k'', with segmental toothed pinion j, shaft J, and toothed standard I', for the purpose substantially as described.

6. The flexible traction-feet or treads a a, when used for propelling a machine, substantially as described and for the purposes set forth.

7. The steam-plow machine above described, when the several parts are constructed, arranged, and combined together in one machine in the manner substantially as set forth.

**90,799. S. B. WILKINS**, Milton, Pa. Steam Plows. June 1, 1869.

Claim. 1. In combination with the cylinder E, the frame N, plows W, and gauge-wheels S S, arranged substantially as described, for the purposes set forth.

2. The employment, in a steam-plow, of one or more plows, arranged in line, with rows of teeth upon a rotative cylinder, substantially as and for the purpose specified.

3. The combination of the plows W with the guage-wheels S, stands T, and screw-rods U, provided with the hand-wheels V, substantially as herein described, for the purpose set forth.

**91,383. LINUS STEWART,** San Francisco, Cal. Steam Plows. June 15, 1869.

Claim. 1. The arrangement of the revolving cutters within a supplementary frame, all in the same line, at right angles to the line of travel, and so placed that the curves described by the arms or blades  $a^1$   $a^2$  may intersect each other, substantially as described.

2. The horizontal connecting-shaft G, united to the shafts  $a$  and  $a^2$ , by universal joints  $b$   $b$ , substantially as and for the purpose described.

3. The segmental racks  $e^1$   $e^2$ , attached to the supplementary frame, and engaging with the pinions  $e$   $e$ , on the shaft H, said shaft being operated by an endless screw, i, engaging with a pinion, f, on the shaft H, substantially as and for the purpose described.

**91,558. JAMES H. NORTHCOTT,**

Mechanicsburg, Ill. Steam Plows. June 22, 1869.

Claim. 1. As new in steam-plowing, the working-shaft, and the combination and arrangement by which said shaft is placed in position to receive the power direct from the engine, with the friction of a single axle between the engine and the main work of moving earth.

2. The frame C, and the mode of raising and lowering the working machinery as desired, by said frame and the screw H.

**93,494. ANDREW JACKSON**

STEVENS, San Francisco, Cal. Steam Cultivators. Aug. 10, 1869.

Claim. 1. The revolving plow-cylinder, having the plows secured thereon, and adjustable in the pedestals, and the system of gearing transmitting motion between the engines, the plow-cylinder, and the driving-wheels, in combination therewith, substantially as herein described, and for the purposes as set forth.

2. The adjustable frame of knives, (set in rear of plow-cylinder,) which slides up and down on the guide-bars, constructed substantially as herein described, and for the purposes as set forth.

**97,299. JOSEPH G. KNAPP,** Madison, Wis. Steam Plows. Nov. 30, 1869.

Claim. 1. A machine for plowing or cultivating the soil, having its mechanism so arranged as to propel the machine, and operate the plows alternately, at intervals, substantially as described.

2. The combination of the toggle-joint R R' with the sliding gate E and crank r, when said parts are arranged to operate in connection with the frame A of a machine mounted on wheels, substantially as set forth.

3. Arranging a plow, N, in connection with an intermittently forward-moving machine, in such a manner that said plow shall move to and fro in the arc of a circle, horizontally, substantially as described.

4. The combination of the mechanism, consisting of the shaft a, wheel F, shaft n, mounted in the sleeve t, and carrying the wheels G and

H, and the wheel J, with its partial row of teeth and the guards b, all arranged as set forth, for operating the plows.

**101,395. AUGUSTIN L. TAVEAU,** Chaptico, Md. Steam Plows. Mar. 29, 1870.

Claim. 1. The construction and arrangement of the traction-wheels O, cleats P, and ribs Q, constructed and operating as and for the purpose as herein set forth and described.

2. The broad detachable tires Q<sup>2</sup>, constructed and arranged as specified, in combination with the elements of the foregoing claim.

3. The arrangement of the pilot-wheel L with the chains, ropes, wires, or rods N, steering-tiller or pole M, and blocks or sheaves n, in combination with a steam plowing apparatus, operating as and for the purpose herein set forth.

4. The arrangement of the stanchion V, pulleys W and X, in combination with the wheel O and belt Y, operating as and for the purpose set forth.

5. The arrangement of the detachable shaft A<sup>2</sup>, band and band-pulley B<sup>2</sup>, in combination with the frame H, piston, and connecting-rods F, operating as and for the purpose herein set forth.

6. The arrangement of the crank-bars C, beams B, and standards D, in combination with the lever K, radial bar H, caster-wheel L, and frame A, operating as and for the purpose set forth.

7. The construction and arrangement of the standards D, curved bars F, and clamps X, in combination with the adjustable screws and nuts G, wooden pins and holes V, and beams B, operating as and for the purpose herein set forth.

**103,635. MIRABEAU N. LYNN,** New Albany, Ind. Steam Plows. May 31, 1870.

Claim. 1. The arrangement of the divided cross-tube B<sup>2</sup>, provided with the slots G, yoke C, guide-wheel F, and curved plates, all substantially as specified.

2. The arrangement, with the two sections of the legs W and the rods Z, of the pipe T's a b d, forming the joints of the said legs, with the rods, substantially as specified.

**103,704. WILLIAM BECKETT,** Kingston, Jamaica. Steam Plows. May 31, 1870.

Claim. 1. The combination of frames D and E, pivoted together as set forth, with the platform F, vertical shaft, hollow standard G, studs H J, and friction-wheels I, as described.

2. The subject matter of third clause, in combination with the eye-pieces K and frames L, whose outer ends rest upon the ground, in the manner described.

3. The combination of the swiveled screw A'' with the plow-truck W, and plow X substantially as herein shown and described, and for the purpose set forth.

**106,441. JAMES T. WILSON,** Rochester, N. Y. Rotary Steam-Plows. Aug. 16, 1870.

Claim. 1. The arrangement of the series of shares and mold-boards with or upon a rotary shaft or cylinder in two or more parallel rows so that the cutting edges of the shares shall project therefrom radially and their points in each row all be formed in a plane passing through the axis of the shaft, substantially in the manner and for the purpose herein set forth.

2. In combination with the sliding-boxes M M, carrying the journals, of the shaft G of a rotary plow, the chains P P and revolving shaft L, for operating the same, substantially as and for the purpose herein set forth.

3. Curved slots N N, formed in supporting frames J J, projecting from the carriage A, as guides for the sliding journal-boxes M M of a rotary plow, the curvature of each slot being such as to describe in its length arcs of different radii, for the purpose of loosening the chain when the cylinder is elevated, substantially as herein set forth.

**109,019. ALFRED LAFAYETTE KENNEDY,** Philadelphia, Pa. Digging Machines for Agricultural Purposes. Nov. 8, 1870. Antedated Oct. 22, 1870.

Claim. 1. The attachment of a traction-engine, or other vehicle, to a digging-device, consisting of a spade, G, actuated by a reciprocating rod C, through the medium of the cam H, lever I, rods s and p, cord i, fly-wheel F, and its pin s' or of other equivalent devices which will produce a like effect.

2. The cam H, carrying the spade or digger G, and consisting of curved ways e and f adapted to the rollers h and h' of the rod C, all substantially as herein set forth.

3. The combination of the cam H, its digger G, reciprocating rod C, and lever I, the latter being operated substantially as described, through the medium of the devices herein described, or their equivalents.

4. The hinging of the frame A, which carries the digging mechanism to the traction-engine or vehicle substantially as described.

**109,183. ROBERT CREUZBAUR,** Williamsburg, N. Y. Steam Tillers. Nov. 15, 1870.

Claim. 1. The frame 2 constructed and arranged to revolve rigidly with the tools, at a constant angle with its shaft f', substantially as and for the purpose described.

2. The sliding head 1, in combination with the shaft f' and frame 2, substantially as and for the purpose described.

3. The shaft f' and arms G, arranged, with the frame carrying the tilling-tools, for vertical adjustment without changing the angle of the tilling tools and frame with respect to the shaft f', substantially as described.

4. The combination of one or more frames, each constructed to operate rigidly with its

tools in a horizontal direction, at a constant angle with its shaft f', with the mechanism for regulating the depth of the entrance of the tools into the soil, substantially as and for the purpose described.

5. The combination of the horizontally-rotating frame, carrying tilling or crop-cultivating tool, with one or more speed-varying gears or mechanisms, operating upon the relative speed of the carriage, and devices for adjusting said gears or mechanism, substantially as and for the purpose described.

6. Laterally or radially adjustable land-tilling or crop-cultivating tools, applied to a horizontally-rotating frame, substantially as described.

7. The adjustment of a set of cultivating-tools or scrapers around their own pivots or shanks g, independent of the adjustment of their carrying-frames, substantially as and for the purpose hereinbefore set forth.

8. In a steam or other analogous land-tiller, the arrangement of the horizontally-rotating frames carrying tilling-tools, with seed-distributing devices, substantially as herein described.

9. The combination of the horizontally-rotating frame or frames, carrying land-tilling or crop-cultivating tools, with the transporting wheels of the carriage, by means of a system of driving and controlling mechanism, whether the said system be for giving a uniform or both a uniform and varying speed, substantially as herein described.

10. The arrangement of two or more horizontally-rotating frames, carrying tilling or cultivating-tools, operated simultaneously, and at the same time are separately adjustable up or down without being thrown out of gear, substantially as described.

**111,212. OLIVER HYDE,** Oakland, Cal. Operating Cutters for Steam Plows. Jan. 24, 1871.

Claim. 1. In combination with the blocks E, the metal shoes L, provided with the projecting knife-edged keel m, substantially as and for the purpose described.

2. The colter-runner A', hinged to the shaft A and cutter-shaft J, as and for the purpose set forth.

**111,404. ISAAC P. TICE,** New York, N. Y. Digging Machines. Jan. 31, 1871. Antedated Jan. 21, 1871.

Claim. 1. The combination of the crank g with the arm I and helve A, shaft D, and shaft O, substantially as and for the purpose set forth.

2. The arrangement of the axle C, frame B B, constructed as described, with the lever F, with friction-roller, substantially as described, and for the purpose set forth.

**116,297. LUCIUS H. GIBBS,** Brooklyn, assignor to himself and Philo Remington, Ilion, N. Y. Rotary Spading-Machines. June 27, 1871.

Claim. 1. The rotary-propelling spade-drum, which is composed of pairs of rings having

spades pivoted to them, and operated substantially as described.

2. A support or stop, O, in combination with pivoted spades and yielding mechanism, substantially as described.

3. Clearers *d e*, in combination with pivoted spades applied to a rotary drum, substantially as described.

4. The rotary spading drum, which is applied to an independent vibrating frame, and is driven independently of the carriage or supporting-wheels, and is propelled by the contact of its spades with the soil, all substantially in the manner herein set forth.

5. The locking-down device G G<sup>1</sup> G<sup>2</sup>, in combination with a vertically-vibrating frame carrying a rotary-propelling spading-drum, substantially as described.

6. The pivoted arm L, carrying the stop O, having combined with it an adjustable rod, f, and a lever, g, substantially as described.

**116,610. MIRABEAU N. LYNN,** New Albany, Ind., assignor to himself and Edward H. Mann, same place. Steam Plows. July 4, 1871.

Claim. 1. The reciprocating toothed yoke G, constructed as described, in combination with the spur-wheel J, pitman D, slide B, and pushing-legs C C, substantially as and for the purposes described.

2. The foot t, constructed as shown in Fig. 4.

**117,113. ZERAH RIDER,** Painesville, Ohio. Steam Plowing-Machines. July 18, 1871.

Claim. 1. The wheels M N, gearing K J, pinions H, driving-wheels B B, and plows D', all arranged to operate substantially in the manner as described, and for the purposes set forth.

2. The arrangement of the crank-wheel N, chain or band P, driving-wheel M, pinions K J and H H with the teeth G on the traction-wheel, together with the adjustable plow-beams C C, in the manner substantially as and for the purpose specified.

**118,013. WILLIAM H. H. HEYDRICK,** Chestnut Hills, Pa. Mode of Attaching Plows to Traction-Engines. Aug. 15, 1871.

Claim. 1. The drawing-frame, having beam I and the plow-beams, combined with the ribbed plate K and slotted and grooved plate L M, as and for the purpose specified.

2. In combination with beam I and plate K L, the bolts and nuts provided with springs O, arranged as and for the purpose specified.

**118,143. HERMAN MILLER,** Bellville, Tex. Steam Plows. Aug. 15, 1871.

Claim. In a steam-plowing apparatus, the arrangement of the chain-wheel j, sheaves l and m, spur-gear h, pinion g, crank-shaft c, sliding pinions b, and internally-toothed wheels B a, as shown and described, whereby they are adapted to operate in connection with the chain

fastened at each end outside the machine, as set forth.

**119,216. WILLIAM C. BIBB,** Madison, Ga. Steam-Wagons and Plows. Sep. 26, 1871.

Claim. 1. In a steam-wagon for plowing and other purposes, the combination of cylinders F, piston-rods a, axle-trees D D', pinions B<sup>4</sup> and B<sup>3</sup>, shaft C, pinions B<sup>2</sup> and B<sup>1</sup>, loose wheel A, pinion σ<sup>2</sup>, curved rack σ<sup>1</sup>, and carrying-wheels w, for the purposes set forth.

2. The horse-feet devices J J, in combination with the carrying-wheels w, for the purpose described.

3. The seeding and harrowing devices consisting of cylinder s, apron y, lever l, slide m, ring r, and harrow-teeth, for the purpose described.

**120,071. OLIVER HYDE,** Oakland, Cal. Steam Plows. Oct. 17, 1871.

Claim. The frame I, connected with the frame A by means of the hinged arms or braces J, in combination with the box K and driving-shaft E provided with the bevel wheel f and sleeve g, all constructed and arranged substantially as and for the purpose herein described.

**134,913. ALBERT E. McGAUGHEY,** East Minneapolis, Minn. Steam Plows. Jan. 14, 1873.

Claim. 1. The rotary spider F carrying the plow or plows H on the rotating axle or axles G, as specified.

2. The shaft G carrying the plow H and combined with the pinion a and spring b, as set forth.

3. The click e arranged in combination with the spider F, shaft G, and plow H, as set forth.

4. A plow rotating around a vertical and horizontal axis, substantially as set forth.

5. The shafts E and G arranged in combination with the plows H, as set forth.

**139,966. PETER J. McDONALD,** San Francisco, Cal. Steam Plows. June 17, 1873. Filed Mar. 15, 1873.

Claim. 1. The slotted boxes E' in combination with the cords or chains g, pins i, and axle F, having holes for the reception of said pins, substantially as and for the purpose set forth.

2. The frame I, with its casting J, having the parallel flanges j j, and arranged to support one or more ways or pairs of ways, K K, substantially as set forth.

3. The slides Q, having with their plows P P, a reciprocating motion in combination with the horizontal ways K K ropes or chains u u', and reversible drum L, substantially as described and for the purpose set forth.

4. The sliding rod z with its operating arms y y' kept in place by the spring z' in combination with the spring lever b latch e with its catch n' and trip lever l', the whole operated by the slide Q, substantially as set forth.

5. The reversing gear consisting of the bevel-

wheels R R' R" in combination with the clutches  $\wedge \wedge'$  when operated by the weight of the triangular frames K,  $1\text{m}$  by means of the latch e and spring lever b as and for the purpose set forth.

6. The ratchet wheel 4, in combination with the lever 5 with its pawl 6, when operated by the rope 7 and drum 8 for the purpose described.

**144,820. ISAAC S. ALLEN, MONTELIOUS P. BROWEN, and CHAS. W. MOULTHROP,** San Francisco, Cal. Steam Plows. Nov. 25, 1873. Filed Feb. 11, 1873.

Claim. 1. The crank shaft D, with its driving and intermediate gear wheels for giving motion to the traction wheels, and the hollow axles F F, in combination with the traction wheels the cranks G G connecting rods I I and frame K, for raising and lowering the cutters substantially as and for the purpose set forth.

2. The combination of the shaft D, through the hollow axles F F and the cranks G G connected by the rods H H to cranks I I and frame K, with shaft J substantially as and for the purpose set forth.

**147,122. JORDAN GILES,** Louisville, Ky. Spading Machines. Feb. 3, 1874. Filed Sep. 24, 1873.

Claim. 1. The combination of the bar H and spade handles E, the latter being constructed with a curved slot E' or its equivalent and connected to the bar H, substantially as and for the purpose specified.

2. The combination of the spade handles E, bar H, arms H' h, and sliding rods I i, substantially as and for the purpose specified.

**149,210. JAMES W. EVANS,** New York, N. Y. Steam Plows. Mar. 31, 1874. Filed Nov. 22, 1873.

Claim. 1. In a steam plow, the valve of the secondary or plow lifting engine in combination with the propelling engine and mechanism for connecting the two, whereby the plows are raised and lowered automatically, substantially as described.

2. The combination, substantially as herein described of the pitmen e e' with the plows or slides B B carrying the latter, said pitmen being connected with the plow-slides in front of the plows, for the purposes specified.

3. The slides B B, provided with three or more rollers b b on either side, in combination with the plows carried by said slides, and the plow frames C C constructed to form straight guides with rising ends e e' substantially as herein described.

4. The combination of the reversely arranged toothed sectors J J, the crank n, the racks K K and the plow frames C C, substantially as specified.

5. The independent forward section F' of the main frame, hung to rock on the main axle H, in combination with the steering-wheel L, and tank N, carried by said section substantially as and for the purposes herein set forth.

**160,760. JAMES FOGARTY,** Newark, N. J. Steam Plows. Mar. 16, 1875. Filed Oct. 10, 1874.

Two engines or cylinders, distinct in their action and speed, one, to drive the plow, the other to propel the carriage. A horizontally-rotating plow elevated, or its depth governed through a steam pipe and piston rod attached to the vertical plow shaft.

Claim. 1. The rotating plow V having the inclined plates V<sup>1</sup> and teeth V<sup>2</sup> combined and adapted to serve as and for the purposes herein specified.

2. In a steam plow the independent steam-cylinders B P, with their respective trains of mechanism combined and adapted, the one to impel the revolving plow and the other the propelling wheels with variable ratios of power and velocity as specified.

3. In combination with the plow shaft T and its propelling mechanism the connected piston and cylinder A' with the controlling valve J, to allow the plows to be raised and lowered at will in the manner herein set forth.

**162,884. D. BEAUMONT,** Sacramento, Cal. Steam Plows. May 4, 1875. Filed Mar. 10, 1875.

The plows are of anger form, placed upon rotating shafts projecting toward the line of draft and operated by gear and bevel wheels. To the bearing axle a skeleton frame is pivoted secured by a king bolt to the axle of steering-wheels. A toothed segment upon one frame, and a crank shaft and pinion upon the other, serve to elevate or depress the plows.

Claim. The balanced frame A, having the gear wheels j k l bevel wheels g g and spiral plows C, placed at an angle with the ground and projecting forward in combination with the connecting frame T, steering wheels S, toothed segments U, shaft V and pinion W, all arranged and operating substantially as shown and described.

**166,230. THEO. C. STARK,** Vallejo, Cal. Steam Plows. Aug. 3, 1875. Filed June 12, 1875.

Two or more gangs of plows are arranged upon beams which slide backward and forward between guides. Attached to each plow-beam is a chain passing around its pulley upon the forward wheel shaft. A rigid lever or post on the pulley has an eccentric connection with the geared propelling shaft. The eccentrics are on opposite sides of the latter shaft so that as the machine moves forward the plows upon each beam work alternately.

Claim. Two or more guided plow-beams C with their attached plows F arranged to be operated in alternation from one main power by means of the chains I, pulley or cranks K levers M, connecting rods O and eccentrics P, all combined and arranged to be driven by the shaft Q, substantially as and for the purpose described.

**171,595. BENJ. S. BENSON,** Baltimore, Md. Steam Plows. Dec. 28, 1875. Filed Aug. 11, 1875.

Claim. 1. A rotary plow, D, having the rotary vertical sod cutting edge d, and at right angles thereto a bottom cutting edge d' oblique to the axis of motion, as shown and described.

2. The combination, with rotary plows, of fingers E E arranged behind each plow, and on the same shaft, as and for the purpose set forth.

3. The combination, with rotary pickers F and receptacle H, of rotary bars g, arranged at intervals and in concave form behind the pickers and below the top of receptacle, as and for the purpose specified.

4. The wheel frame N, laterally adjustable with respect to truck, as and for the purpose described.

**185,484. GEORGE F. BROTT,** New Orleans, La. Steam Plows. Dec. 19, 1876. Filed Nov. 15, 1876.

Claim. 1. The circular cutters projecting from the periphery of the drum which is geared or connected with the driving shaft, the adjustable frame S, the transporting wheels, and main frame A, said parts being combined as shown and described, to operate as and for the purpose specified.

2. The rotary diggers arranged in relation to the circular cutters as shown and described, so as to begin their cut in the slit made by said cutters as specified.

3. The combination, of the adjustable frame S, hinged at the front end, and carrying the rotary cutters A, diggers B, and blades C, and the rack-bars and worm gear combined as shown and described, for the purpose specified.

**191,996. OLIVER A. OLMS TED,** Santa Rosa, Cal. Cultivators. June 12, 1877. Filed Mar. 14, 1877.

Claim. 1. The track wheels D I', composed of the internally toothed rings c', having removable tires H' of broader tread than said rings, the edges of the said tire extending out beyond the adjacent edges of the rings, substantially as specified.

2. The track-wheel D, having a raised tooth ring c' in combination with the lantern wheels c d' the driven pinion d its shaft D' the clutch pinion E' pinions F F and gear-wheel F' the driving pinion G, and driven shaft G' substantially as specified.

3. The rotary cultivator cylinder J, journalled in the lower ends of the vertical guided racks J', in combination with the pinions m, engaging said racks a hand wheel O, and shaft N, operating said wheel and a spring-pawl, P, holding said pinion against backward rotation substantially as specified.

**198,601. SEXTUS P. GODDARD,** Worcester, Mass. Steam Plows. Dec. 25, 1877. Filed Dec. 17, 1877.

Claim. 1. In a machine of the class des-

cribed the roller F, provided with teeth f' and circumferential knives f, substantially as shown and for the purpose set forth.

2. In a machine of the class described, the roller D, provided with a series of knives d placed upon its circumference and running parallel to its axis in combination with the roller F, provided with teeth f' and circumferential knives f substantially as shown, and for the purpose specified.

3. In a machine of the class described, the leveling-roller C, provided with curved knives e, in combination, the roller D, provided with its knives d, and the roller E, having circular knives, substantially as shown, and for the purpose set forth.

4. The combination of the roller C, having leveling knives, the main driver D, having knives d, the roller E, having its circular knives, and the roller F, provided with circular knives or guards f and the rake-teeth f', substantially as shown, and for the purpose set forth.

**204,790. JAMES BEARD,** Kent, Iowa. Steam Plows. June 11, 1878. Filed Apr. 15, 1878.

The pinions on the crank-axle may be adjusted to mesh with the cog-wheels on the inner ends of the hubs, or with the internal gear on the inside of the wheel. By this means the wheels may be moved in opposite directions, and the engine be turned around almost upon its own axis.

Claim. In a steam-plow, the combination of the frame a, having the plow o secured to its under side, with the driving-wheels b, having the movable shoes i around its periphery, and the internal gears h, secured to their inner sides, crank-shaft d, movable pinions e, and spur-wheels g, substantially as shown and described.

**211,843. JAMES FOGARTY,** Newark, N. J. Steam Plows. Feb. 4, 1879. Filed Sep. 3, 1878.

Claim. 1. The telescopic bearing E, in combination with the supporting-casing A<sup>4</sup> and the plow-shaft T, adapted for joint operation, as herein specified.

2. In combination with the plow-shaft T and telescopic bearing E, rising and sinking therewith, the slide I, mounted in the casing A<sup>4</sup>, and engaging with the telescopic bearing to support it and its adjuncts when required, as specified.

3. In combination with the plow-shaft T and suitable driving means C<sup>4</sup>, the gear-wheel X, having necks X<sup>1</sup> X<sup>2</sup>, the lower neck X<sup>1</sup>, filling the interior of the casing A<sup>4</sup>, and serving as a firm bearing for the shaft T, as herein specified.

4. The gear-wheel X X<sup>1</sup> X<sup>2</sup>, formed with splines x, in combination with the plow-shaft T, having wings T<sup>1</sup>, and adapted to serve therewith, as and for the purposes specified.

5. The filling-pieces Z, in combination with the splined gear-wheel X X<sup>1</sup> X<sup>2</sup> and with the winged plow-shaft T T<sup>1</sup>, as specified.

6. The stout bracket A<sup>11</sup>, having a wide-lateral opening above and a complete tubular form

below, in combination with the upright shaft U, segment U', worm O', and suitable supporting-wheels A<sup>1</sup>, as herein specified.

7. The breaking-pins  $\varphi$ , movable ring Q, and operating means L L' N, in combination with the sprocket-wheel R and gear-wheel R', serving relatively to each other and to the driving-wheels A<sup>2</sup> A<sup>3</sup>, as herein specified.

8. The plow-shaft T and its connections, guiding means A<sup>1</sup>, sleeve E, steam-raising means A<sup>1</sup>, positive holding means I, and driving-wheel C<sup>3</sup> and its connections, in combination with each other and with the boiler A and suitable carrying-wheels A<sup>1</sup> A<sup>2</sup> A<sup>3</sup>, as herein specified.

**217,506. BENJAMIN S. BENSON,**  
Baltimore, Md. Traction-Engines and  
Steam Plows. July 15, 1879. Filed Nov.  
19, 1878.

Claim. 1. A gang of plows attached to and combined with a continuous flexible spring-bar, forming the main cross-bar of the frame, to adapt the plows to the unevenness of the ground, as described.

2. The combination, with the plow-frame and the plow pivoted thereto, of a steam-cylinder and piston, arranged substantially as described, to apply an elastic steam-pressure to said plow, as set forth.

3. The plow having a bend in its beam at  $\delta$  and pivoted at this point to its frame, in combination with the steam-cylinder and piston swung upon trunnions, as described.

4. The gang-frame composed of parallel bars bifurcated at their front ends and provided with horizontal friction-rollers, in combination with the traction device and a transverse rod attached to said traction device and extending through the forked ends of the parallel bars in the rear of the friction-wheels, as shown and described.

5. The flexible spring-bar and adjustable gauge-wheels, in combination with the plows, as described.

6. The combination, with the plows, of the gang-frame, consisting of the parallel bars E, right-angular bar E<sup>1</sup>, and oblique flexible spring-bar E<sup>2</sup>, substantially as described.

7. The combination, with a gang of plows, of a wheel, K, located upon the mold-board side of the gang, and constructed with a flange,  $\sigma^2$ , and a convex face adjacent to said gang, adapted to bind against the vertical wall of earth of the preceding furrow and counteract the lateral thrust of the gang, as described.

8. The endless traction-chains consisting of the axial rods  $a'$ , the triangular links  $c'$ , having their apices pointing outwardly from the center, and provided with loosely-connected feet or shoes  $d'$ , all combined as shown and described.

9. The combination, with the traction-chain, constructed substantially as described, and having fricting-rollers  $b'$ , of a flexible spring-rail, O, attached to the frame-work of the machine and adapted to bear and run upon the

friction-rollers of the chain as the latter is laid down in front, as specified.

10. The wheels N N', constructed with gear-teeth upon their peripheries and projecting notched flanges upon each side, in combination with the driving-pinions M M' and the traction-chain jointed by axial rods  $a'$ , as described.

11. The combination, with an endless traction-chain, of one or more steam-cylinders and pistons for applying an elastic steam-pressure to give greater traction to the chain or allow it to yield, as set forth.

12. The combination, with the endless traction-chain, of the rails O f', the yoke-shaped frames P, the cross-heads Q, connecting said yokes, and the steam-piston rods connected to said cross-heads, substantially as shown and described.

13. The combination, with the endless traction-chain and the steam-cylinders located within said chains, of the valve-box T, the communicating pipes, and operating-levers, substantially as and for the purpose described.

14. The combination of an endless traction-chain having friction-rollers, a flexible spring-rail resting upon said friction-rollers, and a steam-piston connected to said flexible rail and adapted to apply pressure to the chain, substantially as described.

**220,365. WILLIAM H. FOYE,** San Francisco, Cal. Steam Farming Apparatus. Oct. 7, 1879. Filed May 13, 1879.

Claim. 1. The steam farming apparatus, substantially as described, consisting of the platform A, supported on the bent rear axle and upon the front guiding-wheels, which are carried in the rim above the platform, in combination with the boiler and engine, arranged on the front of the platform, and with detachable mechanism in rear of the boiler on said platform, as set forth.

2. The combination, with the platform A, supported and steered as described, and carrying boiler and engine, of the secondary detachable platform W, carrying the shaft, clutches, and drum or drams, the said parts being arranged to be driven by the engine, as set forth.

3. The horizontal gear-wheel and drum Q, with its driving-pinion O and the rope V, in combination with the gear-wheel and drum R, with its driving-pinion P and rope U, whereby the plows may be hauled across the field and the engine advanced, substantially as herein described.

4. The shaft N, with its pinions O P, moving upon feathers, and controlled by the levers S and T, in combination with the gear-wheels and drums Q R, mounted one above the other upon the same vertical shaft, whereby the drums with their respective ropes U and V may be actuated independently of each other, substantially as and for the purpose herein described.

5. The gear-wheels Q and R, with their rope-winding drums, working independently upon the same vertical shaft, the pinions O and P, levers S and T, driving-shaft N, and pinion M,

said mechanism being mounted upon the independent frame W, so as to be secured to the bed and connected with the engine, or removed bodily without other adjustment, substantially as herein described.

**220,367. WILLIAM H. FOYE,** San Francisco, Cal. Double-Acting Reversible Gang Plows. Oct. 7, 1879. Filed Apr. 29, 1879.

Claim. 1. The plow-beams C, crossing each other diagonally within the frame A, and having secured to them the oppositely placed gangs of plows B, with an operating mechanism whereby by one gang may be elevated and the other depressed, substantially as herein described.

2. The plow-beams C, crossing each other diagonally and carrying the plows B, one of said beams having the arch or yoke E, whereby by one beam may be raised and the other depressed simultaneously, substantially as herein described.

3. The plow-beams C, crossing each other diagonally and carrying the plows B, as shown in combination with the frame A, and the guides D, substantially as and for the purpose herein described.

4. The plow-beams C, crossing each other diagonally and having their ends fitted to move in the guides D, in combination with the lever F and G or an equivalent device, whereby the beams may be moved in opposite directions simultaneously, substantially as herein described.

5. In a gang plow, plow-beams crossing each other diagonally, each beam carrying plows set in a direction opposite to those on the other beam, in combination with a frame in which the said beams are supported and are vertically adjustable, as set forth.

**225,692. THOMAS C. DARBY,** Pleshey, Lodge, near Chelmsford, Eng. Cultivators. Mar. 23, 1880. Filed Feb. 23, 1878. Patented in Eng. July 3, 1877.

The side of the implement along which the spades are arranged is supported upon legs, to which is imparted by eccentrics a slight up-and down and rocking movement which causes them to propel the machine and simultaneously operate the digging spades or forks. The fulcrums of the legs, may be changed to regulate their forward and backward (rocking) movement.

Claim. 1. The combined arrangement of digging machine, consisting of a steam boiler and engine, propelling legs G, ranged along one side of the machine, movable rod H, for varying the position of the fulcrums of these legs and a series of digging forks worked together with the legs, substantially as described.

2. The combined arrangement of supporting and propelling legs G, with movable fulcrums I' and rod H, for varying the positions of the fulcrums, substantially as described, for supporting and propelling agricultural implements.

3. The combined arrangement of supporting

and propelling legs G, and digging spades or forks working therewith, substantially as described.

**226,921. THOMAS H. McCRAY,** Tyronza, Ark. Steam Plows. Apr. 27, 1880. Filed Mar. 16, 1880.

Claim. 1. The steam rotary plowing machine consisting of the frame A the driving and gear wheels, whereby the plow cylinder is rotated the means for operating the levers E E which sustain the plow cylinder consisting of the transverse shafts R and b with their bevel gears the side shafts H H, the pinions F' F', and segments F F, all combined substantially as and for the purpose described.

2. The teeth or plow points bent backward from the centers, and having their points hooked, substantially as shown, and for the purpose described.

3. The levers E E, pivoted on the shaft C, having at their ends segment racks F, in combination with the cylinder P and pinion F' as shown and described.

4. The combination of the shafts R H H b with their connecting beveled gears, the pinions F' F', and segment racks F F, guide plates L L, and cylinder P, substantially as and for the purpose described.

**234,882. THOMAS H. McCRAY,** Tyronza, Ark. Steam Plows. Nov. 30, 1880. Filed May 4, 1880.

The plow cylinder is composed of rings with concave and convex sides, which fit into each other and are clamped together and to the centers or frame by screw rods. The teeth are inserted in dovetail sockets capable of being removed without taking the rings apart.

Claim. 1. In steam-plows, a rotary plow cylinder composed of rings having concavo convex cross-sections, substantially as and for the purpose described.

2. The rings of the plow-cylinder, in combination with the cutting points or teeth inserted in a dovetailed socket and secured by dovetailed or conical headed screws inserted from above substantially as and for the purpose described.

3. The combination of the series of concavo convex rings p p having eyes s the centers L' and longitudinal screw bolts s' with the shaft K', substantially as and for the purpose described.

**236,771. EPHRAIM BROWN,** Lowell, Mass. Steam Plows. Jan. 18, 1881. Filed Apr. 8, 1880.

Claim. 1. The combination of the shaft C, clutches B B, shaft w' shaft T, clutch gears s s and traction wheels S S, substantially as described.

2. The combination of a traction engine, carrying upon it a frame placed transversely to the direction of the engine whose length is as great as any one furrow plowed by the plows driven by the engine, the frame being provided on its lower side with ways whose ends are

elevated, so that the plow shall be upon its forward movement and guided by the ways before it begins its furrow, substantially as described.

3. The combination with a traction engine, of a traverse frame provided with ways, with which guide plates to which plows are attached come into contact before the plows enter the soil, and which have upper and lower flanges to preserve the guide plates in proper line of movement substantially as described.

4. The combination with an endless chain carrying plows upon it around and over guide-ways of guard plates to prevent the soil from falling into the ways, substantially as described.

5. The combination with an endless chain carrying plows guided by channeled, ways of a scraper to remove obstructions from such ways substantially as described.

**243,843. CHAUNCEY B. BOSTWICK,** Pittsburg, Pa. Steam Plows. July 5, 1881. Filed May 2, 1881.

Claim. 1. In combination with the digger shaft *f*, the shaft *S* and connecting chains the cogs *s* and worm *r* the shaft *O*, and bevel gear *f'* the loose bevel gear *p* and clutch *g* on shaft *J*, all arranged to operate substantially in the manner specified.

2. In combination with the shafts *R* and *f*, the connecting rods *G*, jointed at *g* and *G'* and the parts *G'* and *R'* whereby they are capable of yielding in two directions, substantially as and for the purposes specified.

3. In combination with the shaft *f*, the hubs *F' F'* and oscillating wheel *F*, the hub *F'* being provided with recesses, into which project the studs *F''*, substantially as and for the purposes specified.

4. The plowing-tools consisting of shanks provided with segment-sockets *Q*, and having the points *f''* and subsoil-diggers *f'*, constructed and secured together substantially as specified.

**249,404. RUFUS E. ROSE,** New Orleans, La., assignor of one-half to Charles J. Allen, same place. Plows. Nov. 8, 1881. Filed June 3, 1881.

Claim. 1. In a plow, the combination, with a beam mounted on suitable runners, of a right and left hand plow placed back to back and connected together by suitable braces, a landside or stock for the double plow, by which it is adjusted vertically, and a vertically-adjustable sole placed on a level with the bottom of the plow and extending between the outer ends of the points, substantially as set forth.

2. In a plow, the combination, with a beam curved at both ends and mounted on suitable runners, a landside or stock, right and left hand plows and sole, of inclined cutters placed on a line with the landside or stock at both ends thereof, and adapted to protect the projecting end of the landside and point, substantially as set forth.

3. In a plow, the combination, with a beam mounted on pivoted runners, the side beam and runners adapted to move on the surface of the

ground, of a right and left hand plow adjustably secured to the beam by a single landside or stock, and adjustable cutters secured to said beam at both extremities of the landside, substantially as set forth.

4. The combination, with a beam mounted on runners and carrying a right and left plow, of cords or chains connecting the said runners, and a chain connecting one set of runners with a winding-drum rigidly secured on the steering-wheel shaft, substantially as set forth.

5. In a plow, the combination, with a beam having a right and left hand plow adjustably secured thereto, of runners pivoted to said beam, having metallic flanges adapted to penetrate the ground, and suitable mechanism for turning the runners simultaneously, substantially as set forth.

**251,513. BENJAMIN S. BENSON,** Baltimore, Md. Steam Plows. Dec. 27, 1881. Filed Oct. 21, 1881.

Claim. 1. The combination, with a traction-chain having presser-feet for contact with the earth, of three sprocket-wheels arranged in triangular relation to each other, and mechanism for driving the traction-chain, connected directly with the upper-sprocket-wheel to secure a better draft and the better picking up the track, as described.

2. The combination, with the two systems of traction-chains having presser feet for contact with the earth and the triangularly-arranged sprocket-wheels, of a shaft, *F*, connecting the end sprocket-wheels and having free lateral movement, as described.

3. The combination, with the two systems of traction-chains and the sprocket-wheels carrying the same, of the sectional shafts *F F'*, connecting the end sprocket-wheels, and having a swiveling connection, *a*, as and for the purpose described.

4. A traction-chain composed of links made in the form of right-angled triangles, with a rail or way formed on one side of the right angles, and with a presser-foot arranged at one end of said link and below the joints of the chain, for the purpose described.

5. The combination of a traction-chain having rails or ways on the upper surface of its links, a set of stationary trucks resting on said rails, and a set of spring-seated presser-feet connected to and supporting the traction-chain, substantially as described.

6. A traction-chain composed of hinge-rods and jointed links, having rails or ways on one side and presser-feet on the other, and having at their opposite ends tongues and forks, with elongated slots in the tongues, through which the hinge-rods pass to render the chain flexible in lateral direction, as described.

7. The combination of a set of stationary trucks and a traction-chain composed of links having presser-feet on one side and rails or ways on the opposite side, shouldered or rabbed so as to form lap-joints, as described.

8. A traction-chain having a jointed presser-

foot made in hat shape, with a hollow crown and a curved rim, as and for the purpose described.

9. The combination of a traction-chain having a smooth track formed on its inner surface, a carrying-frame, and a set of wheeled trucks connected permanently with the carrying-frame and resting upon the smooth track or rail of the traction-chain, as and for the purpose described.

10. The combination, with the traction-chain having a smooth way or rail, and the carrying-frame B B, of a set of wheeled trucks connected flexibly together throughout the series, and having an elastic connection with the carrying-frame, as described.

11. The combination, with the double frame B B, having cross-plates  $\rho$ , of the endless traction-chain, the trucks resting thereupon and connected with the cross-plates by a vertical pin or rod, and an interposed spring, as and for the purpose described.

12. A truck composed of four wheels and two axles, and having one of its axles arranged in fixed bearings and the other arranged in bearings free to oscillate horizontally, in combination with the flexible traction-chain and the carrying-frame arranged to bear upon said trucks, as and for the purpose described.

13. The trucks having one axle arranged in fixed bearings and the other in horizontally-oscillating bearings, with both axles having a free endwise movement, in combination with the flexible traction-chain and carrying-frame, as and for the purpose described.

14. The combination, with the traction-chain and the carrying-frame, of two four wheeled trucks and a loosely-coupling reach or bridge-piece, G<sup>3</sup>, together with a spring and a sliding rod for connecting the bridge with the carrying-frame, as shown and described.

15. The bridge-piece G<sup>3</sup> and cross-plate  $\rho$ , formed with an annular recess, k, and cylinder l, in combination with a rod, m, and a spring, for the purpose of securing the greatest length of spring and the shortest rod, as herein described.

16. The bridge-piece G<sup>3</sup>, having an annular depression, k, and a hollow cylinder, l, screw-threaded below, in combination with the slide-rod m and the stop-screws q, to act as a stop or render the trucks non-yielding, as set forth.

17. The spring n, made in sections, and separated by one or more steady-buttons, o, in combination with the bridge G<sup>3</sup>, and cross-plate  $\rho$ , and the central rod, as and for the purpose set forth.

18. The combination of the two traction-chains having feet to engage the ground and a set of trucks for each chain with one or more coupling-bars or cross-rods, H, substantially as and for the purpose described.

19. The metal bar Q, fixed to the frame of the engine, and having a forward center curve, z, and two forward side curves, in combination with the plow-frame K, having central tongue, M, and arms or sway-bars N N, both provided

with friction-rollers, and adapted to bear against the bar Q and oscillate, as described, about the center of the engine.

20. The plow-frame having a shaft, P, at right angles to the line of draft, carrying a series of plows, arranged side by side and at right angles to the line of draft, in combination with a standard, S, carrying an elongated blade or runner, R, arranged to press against the land-side of the preceding furrow to counteract the lateral thrust as set forth.

21. The plows L, having elevated standards and forward extensions midway of said standards, provided with rigid sleeves s s, in combination with an axial shaft, P, parallel separating frame-bars, and push-bars V, by which the plows are held or rocked on said shaft, as described.

22. The combination, with the plows, hinged or jointed upon a horizontal shaft and having their standards extended above the said shaft, the push-bar V, having notch c n, and the hinged catch p c, having an arm or extension held by a spring to resist the normal draft-strain of the plow and allow the plow to be tripped by an unusual strain, as described.

23. The combination, with the hinged plows L and their push-bars V, of a continuous shaft, W, having a series of tappets, X', for each plow, and means for rocking the shaft, whereby the tappets are made to trip the push-bars and throw all of the plows out simultaneously, as described.

24. The combination, with the traction-chain and independent driving-gears connecting respectively with each, of a differential gear, which is an element on one of the train of driving-gear, and is permanently connected to both the shaft from which it receives motion and the gear to which it transmits motion, whereby either an accelerated or a diminished speed is imparted to one of the traction-chains without variation in the speed of the main drive shaft and without disconnection of the gears, as described.

25. The differential gear composed of the central shaft, A', a hollow hub, b', fixed to said shaft, the loose drive-pinion a', and spiral gear-wheel c', fixed on a sleeve encompassing the shaft A', the shaft e', carrying spiral gear-wheel d' and crown-wheel f', the loose cup-shaped disk G', having a spiral flange, h', gearing with the crown-wheel, and a friction-brake or means for arresting the motion of the disk G', substantially as and for the purpose described.

26. The combination, with the differential gears F' F<sup>2</sup>, constructed as described, of the strap-brakes H' H<sup>2</sup>, the concentric shafts I' I<sup>2</sup>, and the hand-levers J' J<sup>2</sup>, substantially as and for the purpose described.

27. The combination, with the differential gears and mechanism for setting them in action, of a second train of mechanism for automatically operating them, consisting of a cam, K', located on one of the shafts of the sprocket-wheels, a swinging frame or cross-head carry-

ing draw-rods connected respectively with the two differential gears, and a drag-bar and block or runner adapted to run in the preceding furrow and operate the swinging frame to throw one or the other of the draw-rods into engagement with the cam to automatically start the action of the differential gears, as described.

**251,817. BENJAMIN S. BENSON,**  
Baltimore, Md. Gang Plows. Jan. 3, 1882.  
Filed Mar. 24, 1881.

Claim. 1. In combination with the gang-plow frame, the supporting trucks 62 on each side thereof having endless tracks 66, tie rods, 67, and feet 68, as set forth.

2. In combination with the gang-plow frame the supporting trucks running upon endless tracks pivoted to either side of the same, and connected therewith by arms 72 as set forth.

3. In combination with the gang plow frame and pull bar 82, the adjustably pivoted lateral pull bars 73, 85 and screw rod as set forth.

4. In combination with the gang plow frame and pull bars 73, 82, and 85, the pivoted cross bar 86, and screw rod 83, as set forth.

5. In combination with the plow gang and frame 78 the cross-bar 96 nut 99 rod 97, and the hand wheel 98, as set forth.

6. In combination with the wheel rod, nut, and bar 98, 97, 99, and 96, the series of plows connected to the bar by bell crank levers, as set forth.

7. In combination with the frame having segmental braces 92, the series of plows having the front ends of their beams adapted to run upon said braces and mechanism for actuating the said beams laterally, as set forth.

8. In combination with the plow-beam 94, having slot 102, the beam 91 having lug 103, and a spring for holding the lug against ordinary strain in engagement with the slot, as set forth.

9. In combination with the beams 91 94, having slot and lug, the lever 104 and spring 105 as set forth.

10. In combination with the long beam 94, having wheels 93, arcs 101 and slots, the short beams 91, having lugs, and the rods 90, as set forth.

11. In combination with the beam 61 and the gang-plow the trucks 62, levers 75, and beams 74, as set forth.

12. In combination with the plow-gang, the supporting trucks, having feet 68, and endless tracks and connected with the pull bars by rods 72, as set forth.

**252,991. BENJ. S. BENSON,**  
Md. Steam Plows. Jan. 31, 1882. Filed  
Jan. 6, 1881.

Claim. 1. A mold board having its share or front cutting edge inclined as described, reversely to the general inclination of the mold-board and extending forwardly from the plow-standard to the previous furrow, as and for the purpose set forth.

2. The combination with a mold-board plow,

of a detachable share D, inclined reversely to the general inclination of the mold-board, as described and attached to the front edge of the same, and extending forwardly to the land side of the previous furrow, and then up to a support as described.

3. The combination with one or more plows of a passively-moving railway having presser feet with an inwardly projecting angle adapted to fit over the edge of the unplowed ground, and a flanged wheel truck located within the traveling railway and attached to and supporting the plows, so as to cause the weight and lateral strain of the plows to be constantly sustained upon the railway as described.

4. The combination, of the plow-beam B, mold-board A, share D, and the two beams C C', connected to the beam B and jointed to a frame in front, as described.

5. The combination with a mold-board plow having a share D, slanted forward from the mold-board to the previous furrow of a land-side or gage I, fixed to said share and adapted to bear against the wall of the previous furrow, as described.

6. The combination with one or more plows, of a travelling railway and a flanged wheel truck, running within the same, connected to the plow frame by a pivotal joint which permits the railway to rock side wise substantially as described.

7. The combination with the tongue L, pivoted upon a vertical bolt, of a screw-shaft f, extending through said tongue and bearing chain wheel g the chain i, and the chain wheel h located near the driver's seat, as described.

8. The truck H having running wheels with, gear-wheels B' and flanged guides a<sup>2</sup> a<sup>3</sup> in combination with the endless chain A' A' and the jointed racks C<sup>2</sup> substantially as and for the purpose described.

9. A travelling railway having feet with an angle in the same adapted to straddle or lap over the projecting edge of the previous furrow substantially as described.

10. The cleat on the bottom of the foot, arranged longitudinally or in line with the draft so constructed as to take hold in the ground to prevent the track from slewing when the truck is not tilted over the wall left by the furrow, in combination with the railroad track on the feet and the flanged truck wheels.

**255,587. FRITZ BRUTSCHKE,** Berlin  
Germany. Steam Plowing. Mar. 28, 1882.  
Filed July 9, 1881.

Claim. 1. The snatch block carriage mounted upon swiveled wheels I I' and composed of a frame Q Q', sheave P, having pinion b, cog-wheel c having eccentric pulley e band d shaft s, sheave or pulley R, keyed upon said shaft, and provided with the clutch t band drum S, vertically adjustable upon shaft s means for adjusting said drum clutch t fixed in the bottom plate Q' of the carriage frame, and band V having the link or eye W at its free end, con-

structed and combined substantially as and for the purpose herein shown and specified.

**2.** The combination with a fixed pair of anchors, Z Z' of a snatch-block carriage engine, and chains connecting the snatch block with the engine, as described, so that after the band which connects the snatch-block carriage with anchor Z has been shifted to and coupled with the next anchor Z' the snatch-block carriage may be drawn into its operative position in a line with anchor Z' and the engine by the operation of the latter and the chains which connect it with the snatch-block substantially as and for the purpose herein shown and set forth.

**258,046. JAMES H. FOGARTY,** New York, N. Y. Steam Plows. May 16, 1882. Filed Dec. 8, 1881.

Claim. 1. In a steam plow having capacity for moving in both directions without turning around, the arrangement of the revolving plow V and upright shaft  $\nu$  outside of the line of travel of the wheels, as and for the purposes herein specified.

2. The revolving plow V, mounted on the upright shaft  $\nu$ , in combination with the engine-shaft C, with its gear-wheel C<sup>2</sup>, countershaft D, with its wheels D' D<sup>2</sup>, wheels E' E<sup>2</sup>, clutch R, and shaft E, with its gear-wheel E\*, and the train of connection therefrom to the driving-wheels G, as herein specified.

3. In a steam-plow, the lifting-cylinder L and piston-rod  $\lambda$ , arranged alongside the telescopic bearing K, and connected by the arm K', and adapted to serve relatively to each other and to the plow V, and its operating means, as herein specified.

4. In a steam-plow, the latch O, lever P, and spring Q, in combination with the telescopic bearing K and the connected plow V  $\nu$ , as herein specified.

5. In a steam-plow, the scrapers W', carried on a rocking-shaft, W, supported and loaded as shown and serving relatively to the wheels B, as herein specified.

6. In a plowing-machine, the driving-wheels G G, plowing device V, operated outside of the path of the driving-wheels, and the cutter-wheel Z, mounted at one end of the machine, combined and arranged as herein specified.

**263,279. THEODORE T. WOOD-RUFF,** Philadelphia, Pa., assignor to Eliza M. Woodruff, same place. Steam Plows. Aug. 22, 1882. Filed Jan. 23, 1882.

Claim. 1. The revolving steering track-drum, in combination with mechanism to rotate it, located within the same and secured to a horizontal circular frame, and a bearing for said circular frame, secured to or forming part of the main frame of the machine, substantially as set forth.

2. The revolving track-drum P, with rails P', in combination with the rack N', frame K, provided with supporting and guide-wheels J H I, engines O O, working the same shaft and set at right angles to each other, gear N, mesh-

ing with rack N', and intermediate gears by which the rotation of the engine-shaft rotates said gear N, substantially as described.

3. The revolving track-drum P, with rails P', and rack N', in combination with the truck carrying flanged guide-wheels H J I, which run upon the rails, and gear-wheel N, which meshes with the rack, the said guide-wheels I I being upon the same axle with gear-wheel N, and the flanges on wheels H and J being on opposite sides to the flanges on wheels I I, substantially as described.

4. The revolving track-drum P, with rails P', rock N', and truck located within said drum P, in combination with engine, gears, and roof, substantially as described.

5. In a self-propelling carriage, a front or guiding truck arranged to turn upon a vertical axis, and provided with separate or independent propelling-power, said propelling-power being adapted to actuate said guiding-truck, causing it to rotate upon its horizontal axis and independent of its movement upon its vertical axis, substantially as and for the purpose specified.

6. In combination with guiding-truck D', the reversible steam-engines, with pinion B<sup>3</sup>, spur-wheels B<sup>6</sup>, coil-drums B<sup>7</sup>, wire rope B<sup>8</sup>, angle-sheaves f<sup>3</sup>, drum h<sup>4</sup>, and vertical shaft, with pinion and chain, as set forth.

7. The lifting steam-cylinder, in combination with the lifting-shaft, independent plows, and lifting-cords connecting each plow to the periphery of the shaft or a pulley secured thereon, substantially as set forth.

8. The draft-bar Y, made in sections, pivoted together and arranged in a line at right angles to the movement of the machine to which it is secured, in combination with the plows pivoted to said draft-bar, said plows being all arranged abreast and independent of each other, as set forth.

9. The jointed draft-bar to which the plows are independently hinged, in combination with the plows all arranged abreast, and a lifting-shaft provided with pulleys, to the periphery of which are secured the lifting-cords, there being a separate cord to each plow, and which cord passes over pulleys, as shown, to allow the plow to automatically adjust itself to the ground, as shown and set forth.

10. The steering or guiding track-drum, in combination with a steam-motor located within said drum, in combination with steam and exhaust pipes, and a universal or tubular joint in said steam-pipe, and arranged over the pivotal point of said track-drum to allow it to be turned horizontally without injury to the steam-pipes, as and for the purpose specified.

11. A plow provided with a curved or receding landside, vertical, or nearly vertical, in front and horizontal, or nearly horizontal, in the rear, to enable a gang of plows to be worked abreast, substantially as shown.

12. A plow provided with a curved or receding landside, m, which is vertical, or nearly vertical, in front, but is horizontal, or nearly

horizontal, in the rear, in combination with a vertical longitudinal flange,  $m'$ , extending along the bottom edge of the said curved landside-plate, as shown.

**265,345. ROY STONE,** New York, N. Y. Steam Plows. Oct. 3, 1882. Filed Jan. 16, 1882.

Claim. 1. In a spading-machine, a driving-shaft,  $\sigma$ , with wheels  $\rho$  thereon, a range of spades L L', an independent crank,  $z$ , and its disk  $r$  to each spade, and links  $s$ , to connect the driving-shaft  $\sigma$  with the axes of the independent actuating-disks, substantially as set forth.

2. The combination, with a spade, L, and its handle, L', of a pair of disks,  $r$ , with a crank-pin,  $z$ , between them, an actuating-shaft  $\sigma$ , with friction-wheels  $\rho$   $r$ , and connecting-links  $s$ , between the actuating-shaft and the axes of the disks, substantially as set forth.

3. In a steam-plow, the combination, with the spade and handle, of a crank,  $z$ , to actuate the same, and an extension spring-link,  $w$ , between the handle and the frame, constructed to act as a retractor and radius bar, for the purposes and as set forth.

4. The shaft  $\sigma$  and friction-pulley  $\rho$ , in com-

bination with the disks  $r$ , having crank-pins  $z$ , the connecting-links  $s$ , and spades L L', substantially as set forth.

5. The combination, with the spades and handles, of crank-pin disks in pairs, friction-pulleys for rotating the same, links connecting the studs of the disks with the shafts of the pulleys, bails or suspending devices, and a cross-bar or shaft to which the suspending device is attached for determining the downward movement of the spades, substantially as set forth.

**265,956. JAMES M. GARDNER,** Ramsey, Ill. Steam-Plow Running-Gears. Oct. 17, 1882. Filed June 12, 1882.

Spring to hold clutch in engagement. Drag-bars with miter-joint to prevent dropping below level.

Claim. The combination of the platform A, having boxes Z Z, opening Q, and rack or bracket R, axle B in bearings C C, carrying drive-wheels D D, provided with notched flanges E E, independent collar H at one end, operating-collar H' at the other, lever L, limiting-bracket N, spring O, and lever P, as set forth.







## SUBSOILERS.

| <i>Plate</i>                                    | <i>Claim</i> | <i>Plate</i>                           | <i>Claim</i> | <i>Plate</i>              | <i>Claim</i> |
|---|--------------|--|--------------|---------------------------|--------------|
| Adecock, J. J., Lumpkin,<br>G. J., and White M. | 1087 659     | Griffin, I. M.                         | 1082 657     | Nabers, T.                | 1076 655     |
| Aland, S.                                       | 1062 651     | " " " (R)                              | 1082 658     | Nichols, W. D. and Clark, |              |
| Allen, D. M.                                    | 1077 656     | Griggs, A.                             | 1083 658     | N. W.                     | 1065 652     |
| Atkinson, C.                                    | 1085 658     | Gross, E.                              | 1059 649     | Pagett, W. C.             | 1055 649     |
| Bacon, H.                                       | 1055 649     | Gross, J. C.                           | 1069 653     | Parker, E. F.             | 1055 649     |
| Banks, J.                                       | 1056 649     | Harris, J. P.                          | 1056 649     | Percefull, Z. R.          | 1086 659     |
| Beall, Z. M.                                    | 1060 650     | Harris, L. P.                          | 1058 649     | Pirkle, W. J.             | 1086 659     |
| Berdan, M.                                      | 1007 652     | Hartman, C. R.                         | 1066 652     | Porter, A. A.             | 1084 658     |
| Black, W.                                       | 1057 649     | " " " [R]                              | 1067 652     | Pullman, J. B.            | 1068 653     |
| Bond, J. L.                                     | 1073 654     | Howard, J. W.                          | 1079 656     | Query, E. M.              | 1070 654     |
| Boon, A. T.                                     | 1063 651     | Hunter, J. F. and Mitchell,            |              | Rankin, I. N.             | 1059 650     |
| Boul, C.  | 1086 659     | D. L. H.                               | 1078 656     | Rappelye, T. S., and T.   |              |
| Bourne, E.                                      | 1081 657     | Jarrell, J.                            | 1084 658     | W.                        | 1061 650     |
| Bowen, H. R. and Robnett,<br>L. D.              | 1073 654     | Johnson, R.                            | 1069 653     | Reese, F.                 | 1078 656     |
| Bradford, W. B.                                 | 1076 655     | Johnson, J. H.                         | 1072 654     | Reynolds, T. H.           | 1074 655     |
| Bradley, J.                                     | 1066 652     | Johnson, R.                            | 1074 655     | Righy, A.                 | 1083 658     |
| Birmingham, G. B.                               | 1080 657     | Johnson, R.                            | 1075 655     | Roberts, A. F.            | 1072 654     |
| Brinly, T. E. C.                                | 1077 656     | Jones, M. R.                           | 1065 651     | Robinson, G.              | 1068 653     |
| Bryant, W.                                      | 1055 649     | Jones, B. F.                           | 1084 658     | Rodnan, J. M.             | 1060 650     |
| Burdin, L. E.                                   | 1071 654     | Kirkman, D. J. and Gray,<br>E. H.      | 1064 651     | Koop, J.                  | 1079 656     |
| Burnham, W. H. H. and<br>Fierce, S. B.          | 1061 650     | Krake, J. A.                           | 1065 651     | Scoville, T. S.           | 1057 649     |
| Cameron, J. F.                                  | 1059 650     | Lamb, D. M.                            | 1076 655     | Seely, S. F.              | 1063 651     |
| Carleton, J.                                    | 1071 654     | Leonard, J. C. and Gobar,              |              | Sipe, A.                  | 1085 659     |
| Chateau, L. J.                                  | 1061 650     | J. J.                                  | 1067 652     | Suniley, W. H.            | 1077 656     |
| Clifton, J.                                     | 1073 654     | Lowe, L. J.                            | 1078 656     | Smith, D. B.              | 1083 658     |
| Colb, J. M.                                     | 1059 650     | McCollum, J.                           | 1083 658     | Squires, E.               | 1086 659     |
| Coe, O.   | 1062 650     | McKinnon, K.                           | 1060 650     | Sutton, W. H.             | 1084 658     |
| Cooper, J. B.                                   | 1060 650     | McKinnon, K.                           | 1079 650     | Tailmadge, N. S.          | 1092 650     |
| Cotten, T. L.                                   | 1070 653     | McMaben, A. A.                         | 1058 649     | Themar, R. and Brand      |              |
| Cotten, T. L.                                   | 1079 656     | Mangham, J. T.                         | 1082 657     | Brothers,                 | 1074 655     |
| Crockett, R. S.                                 | 1072 654     | Manning, A. J.                         | 1081 657     | Turner, J. R. and Jacobs, |              |
| Custer, J.                                      | 1068 653     | Manny, P.                              | 1056 649     | J.                        | 1080 657     |
| Cutcliffe, E.                                   | 1080 657     | Martin, L. V. B.                       | 1071 654     | Tuttle, S. D.             | 1066 652     |
| Davis, B. and Scroggin,<br>J. M.                | 1058 640     | Mathis, J. I. and Harrington,<br>G. W. | 1070 653     | Uttley, G.                | 1057 649     |
| Dickson, A.                                     | 1057 649     | Son, G. W.                             | 1089 653     | Vairin, A. L. P.          | 1080 657     |
| Dover, S. B.                                    | 1087 650     | Mattox, T. T.                          | 1074 655     | Walpole, W. R.            | 1064 651     |
| Everdon, W. P.                                  | 1065 652     | Miner, J. G.                           | 1075 655     | Warinner, W.              | 1081 657     |
| Fisher, J.                                      | 1047 652     | Miner, J. G.                           | 1068 653     | Watson, E. S.             | 1082 657     |
| Fletcher, S. E.                                 | 1078 656     | Murfee, J. W.                          | 1069 653     | Webb, J. W.               | 1072 654     |
| Fowler, J.                                      | 1064 651     | " " " [R]                              | 1070 654     | Wheatley, R. J.           | 1063 651     |
| Freeman, L.                                     | 1083 658     | Murfee, J. W.                          | 1071 654     | Whitehall, N.             | 1075 655     |
| Gilbert, P. M.                                  | 1063 651     | Murfee, J. W.                          | 1077 656     | Whittick, A. H.           | 1075 655     |
| Gillette, H.                                    | 1070 656     | Meyers, C. and Gummow,<br>W.           |              | Wildier, T. G.            | 1073 654     |
|   |              |  | 1077 656     | Williams, W. B.           | 1058 649     |
|   |              |  |              | Wolf, L.                  | 1061 650     |
|   |              |  |              | Wood, J. and North, R.    | 1056 649     |
|   |              |  |              | Yost, G. W. N.            | 1062 650     |

## SUBSOILERS.

**1,527. WM. BRYANT**, Davidson Co., Tenn. Plows. Mar. 31, 1840.

Claim. The fixing in the plow a colter behind the share or cutting part, which colter steadies the plow and loosens the earth lower than the share cuts.

**6,508. HENRY BACON**, Tecumseh, Mich. Subsoil Plows. June 5, 1849.

Claim. The construction of my subsoil-plowshares, in combination with the small plows fastened above them on the same standards, and having a space between them, in the manner and for the purpose represented and described.

**7,732. W. C. PAGETT**, Greene Co., Ohio. Subsoil Plows. Oct. 22, 1850.

Claim. The scoop-instrument A A, with the combination of the cutters B B, in the rear, as a subsoil plow.

**7,910. E. T. PARKER**, Berkley, Ala. Subsoil Plows. Jan. 21, 1851.

Claim. So constructing a subsoil plow with removable mold-board and cutter, in combination with the tri-pronged cultivating teeth, that the same stock may be used either for a subsoil plow or common plowing and cultivating the land, as herein set forth.

**14,726. PELLS MANNY**, Waddam's Groves, Ill. Apr. 22, 1856.

Claim. The combination of the circular rotating colter G, separating-wing H, mold-board D, and bar F, arranged substantially as shown and described.

**15,649. JOSEPHUS P. HARRIS**, Byhalia, Miss. Plows. Sep. 2, 1856.

Claim. Combining with a subsoil plow D, a mold-board E, movable to different heights, substantially in the manner and for the purposes specified.

**18,619. J. WOOD and R. NORTH**, Rochester, Wis. Subsoil Plows. Nov. 10, 1857.

Claim. The combination of the auxiliary or subsoil share and its adjustable standard with the adjusting-lever and its attachments, when the whole is constructed and arranged in the relation to the main share and beam, as herein described and for the purpose set forth.

**19,179. JOSEPH BANKS**, Dadeville, Ala. Plows. Jan. 26, 1858.

Claim. The combination of the triple-branched colter I, bars F G H, and point L, constructed and arranged as herein specified.

**19,658. GREY UTLEY**, Louisberg, N. C. Plows. Mar. 16, 1858.

Claim. The combination of the vertically-adjustable mold-board M with the subsoil-point and the two landsides L L', substantially as and for the purpose set forth.

**19,878. T. S. SCOVILLE**, Elmira, N. Y. Plows. Apr. 6, 1858.

Claim. The combined arrangement of the loosely-turning spur-wheels D D, the separating-washers f f, and the clearing-teeth i i, acting upon or close to said washers, substantially as specified, so that the eccentric movements of the said spur-wheels, together with the said closely-fitting washers and clearing-teeth, will effectually keep the implement free from impediment.

**20,633. ALEXANDER DICKSON**, Hillsbro, N. C. Plows. June 22, 1858.

Claim. The supplemental landside F and colter G, arranged and applied to the plow as shown, and for the purpose set forth.

**21,182. WILLIAM BLACK**, Manchester, Pa. Plows. Aug. 17, 1858.

Claim. The combining with the plow P, the adjustable rotary digger H, having sharp teeth or picks T, substantially as described, for the purpose set forth.

**21,975. A. A. McMAHEN**, Oxford, Miss. Plows. Nov. 2, 1858.

Claim. In combination with a colter having a brace and adjusting-openings therein, a mold-board whose shank is made adjustable in the beam, so that said mold-board may be adjusted to the colter and in the beam, as herein described, the whole being combined and arranged in the manner and for the purpose set forth.

**25,464. WILLIAM B. WILLIAMS**, Warrenton, N. C. Plows. Sep. 13, 1859.

Claim. The combination of standards S, plate P, and oblique wings W, substantially as and for the purpose set forth, with share C.

**26,033. I. P. HARRIS**, Byhalia, Miss. Nov. 8, 1859.

Claim. The combination of the separately adjustable and removable mold-board E, with a subsoil share C situated behind and below it, the said subsoil share being also separately removable, to allow the separate use of said mold-board, substantially as specified.

**27,619. BALDWIN DAVIS and J. M. SCROGGIN**, La Grange, Ga. Plows. Mar. 27, 1860.

Claim. The combination of the beam I, plate F, shank C, notches D, and wedge E, with the adjustable brace G, subsoil-point I, and adjustable mold-board J, the whole being constructed and arranged as and for the purpose described.

**27,626. EZEKIEL GROSS**, Goshen Hill, S. C. Subsoil Plows. Mar. 27, 1860.

Claim. In combination with the furrow plow and subsoiler, the curved brace uniting the beam, the standards, and the handles to-

gether, and when the subsoiler is made adjustable on the brace and beam, substantially in the manner and for the purpose set forth and explained.

**28,407. ISAAC N. RANKIN,** Middle-town, Iowa. Plows. May 22, 1860.

Claim. The arrangement of the double curved standards C C, braces F F, bars E, landsides D D, shoes C' C', handles B B, and beam A, as and for the purpose shown and described.

**28,836. JAMES M. COBB,** Jackson, Tenn. Plows. June 26, 1860.

Claim. The combination and arrangement of the mold-board, standard, and sole with landside plate H and beam A, and with the subsoiler I, as represented, and for the purpose set forth.

**31,108. JOSHUA F. CAMERON,** Livingston, Mo. Subsoil Plows. Jan. 15, 1861.

Claim. Beam A, clevis x and y, rotary colter B, standard F, cutter D, with its clevis T, wedge z, brace e, hook k, and mold-board E, when these several devices are constructed and arranged in the manner and for the purpose set forth.

**31,559. J. M. RODMAN,** South Union, Ky. Plows. Feb. 26, 1861.

Claim. The curved brace F, handles E E, bar G, in combination with the adjustable back brace H, all arranged and operating substantially as and for the purposes set forth.

**31,955. JOSEPH B. COOPER,** Brooklyn, N. Y. Plows. Apr. 9, 1861.

Claim. 1. The attaching of the landside I to the standard E, by means of the screw g and strap H, substantially as shown, to admit of the adjustment of the landside I, as described.

2. The described arrangement of the foot or standard L, sector arm N, bar K, and pin Z, operating in connection with a plow in the manner and for the purpose set forth.

**32,139. JAMES McCOLLUM,** Brownsville, Ala. Subsoil Plows. Apr. 23, 1861.

Claim. 1. The adjustable brace e, pivoted at d' and i to the double pivoted bars b b and g g, and secured to the bars b b, substantially as and for the purposes described.

2. The curved colter C, with its head m, screw pin Z, and nut l', in combination with the track-bars g g, as and for the purposes described.

**32,459. ZADOC M. BEALL,** Russellville, Ky. Plows. June 4, 1861.

Claim. The arrangement of the cutter C, shank D, brace E, plowshare S, beam A, and handles B B, the whole being constructed and combined, and operating in the manner and for the purposes shown and explained.

**32,714. T. S. and T. W. RAPPELYE,** Farmer, N. Y. Plows. July 2, 1861.

Claim. The combination of the two A D, when arranged substantially as shown, to wit: the share or plow D, having its foot or stand-

ard C secured to the bar or beam B, by means of the lip d, and the screw e, passing through the slot f, into the bar or beam B, and the front end of the bar or beam B, attached to the back part of the beam a of plow A, by means of the screw z, and lips b b, for the purpose specified.

**33,131. W. H. H. BURNHAM and SAMUEL B. PIERCE,** Homer, N. Y. Subsoil Plows. Aug. 27, 1861.

Claim. The arrangement of the adjustable bar e, secured as set forth, with the shank a, blade c, bar d, set-screws i i, and plow A, the several parts being constructed and used in the manner and for the purpose specified.

**33,877. L. J. CHATEAU,** Paris, France. Machines for Breaking Subsoil. Dec. 10, 1861.

Claim. 1. The breaking instrument, constructed and arranged as specified.

2. Connecting the breaking instrument with the carriage by means of a compound reach-pole, as described.

3. In combination therewith the regulator i, in the manner and for the purposes set forth; and further, in combination with the apparatus specified, the hoist for elevating the breaking apparatus, as described.

**36,122. LORENZ WOLF,** St. Louis, Mo. Plows. Aug. 5, 1862.

Claim. 1. The iron box F placed under the beam with the arrangement of the plate C, the lug e, and the screw G, working in the box in connection with the standard D, the plow-beam and plowshare or its equivalent, substantially in the manner described and for the purpose specified.

2. Providing the front end of the landside of the plow with a recess for the reception of the detachable sod-cutter J, and also providing attachable block J', to fill said recess when the sod-cutter is detached, the whole to be constructed and arranged as and for the purpose set forth.

**39,761. NATHANIEL S. TALLMADGE,** Fond du Lac, Wis. Plows. Sep. 1, 1863. Antedated Oct. 24, 1862.

Claim. The arrangement of the braces a a' c c, the braces e e', the rib marked r, and the landside, constructed as described and for the purposes substantially as set forth.

**40,003. G. W. N. YOST,** Nashville, Tenn. Subsoil Plows. Sep. 15, 1863.

Claim. The U-shaped holder A, constructed and operating substantially as herein set forth, for the purpose of combining a subsoil plow B with a furrow plow C.

**41,603. ORMAN COE,** Port Washington, Wis. Plows. Feb. 16, 1864.

Claim. 1. The curved tined pulverizer, arranged and supported in rear of the plow-beam A, in a plane obliquely to the line of draught, in combination with the plate b, which forms

a wide channel in the ground to allow the tines to enter freely, substantially as and for the purposes described.

2. Although I do not claim broadly a revolving pulverizer having teeth on its edge, I do claim such having flattened and curved teeth, substantially as shown and described.

3. Arranging in rear of the colter standard of a subsoil plow the revolving curved toothed pulverizer, substantially as described.

**42,264. SAMUEL ALAND,** Rome, N. Y. Plows. Apr. 12, 1864.

Claim. The combination of the mortised cross-bar D, standard B, brace c, and lug G, constructed and arranged to operate as and for purpose herein set forth.

**53,559. ALONZO T. BOON,** Galesburg, Ill. Plows. Apr. 3, 1866.

Claim. 1. The spiral cam C, in connection with the shaft z, for operating either a mole or subsoil plow, substantially in the manner and for the purpose herein set forth.

2. The standards B B, either of the subsoil or mole plow, having a series of notches or teeth b, as arranged and used in their connection with the spiral cam and groove of the beam A, substantially in the manner and for the purposes as herein set forth.

3. The arrangement of the brace bar E, in its relation to the standards, with shackle bar and connecting rod d, attached to the beam of the plow, substantially in the manner and for purpose as herein set forth.

4. The arrangement of the mold-board F, with the subsoil plow, substantially in the manner and for the purpose as herein set forth.

**53,891. S. F. SEELY,** Sylvania, Ohio.

Plows. Apr. 10, 1866.

Claim. 1. The curved or semicircular rear part of the beam A, and front part of the plow or landside B, substantially as shown, to operate upon weeds, trash, &c., and prevent the same from choking or clogging up the plow, as set forth.

2. The semicircular colter D, in combination with the semicircular rear end of the beam, substantially as and for the purpose specified.

3. The subsoil plow E, having a curved standard F, pivoted to curved bars G H, the front ends of which are pivoted to the landside at elevated points, to operate in the manner substantially as and for the purpose herein set forth.

**60,875. P. M. GILBERT,** Kewanee, Ill.

Plows. Jan. 1, 1867. Antedated July 1, 1866.

Claim. The arrangement and combination of the subsoil plow F, the bar D, loop H, and clasp E with the beam of any ordinary mold-board or gang plow, as and for the purpose specified.

**62,243. R. J. WHEATLEY,** St. Johns, Ill. Plows. Feb. 19, 1867.

Claim. A subsoil attachment for plows, constructed, arranged and applied to admit of being adjusted at a greater or less degree of inclination, and also adjusted higher or lower to penetrate the earth at a greater or less depth, as may be required, substantially as herein shown and described.

**63,151. JOSEPH FOWLER,** Hartland, Wis. Plows. Mar. 26, 1867.

Claim. 1. Adjusting the draft vertically by the wedge n, beneath the cross-pin or T-front end of the plow standard, in combination with the wedge l to clamp the standard in the beam, as set forth.

2. The screw bolt i, or its equivalent, fitted as specified, in combination with the standard c, introduced in a mortise of the beams, so as to adjust the draft horizontally, as set forth.

**63,586. WILLIAM R. WALPOLE,** Chicago, Ill., assignor to himself, **WILLIAM G. WOOD,** and **JOHN G. WALKER,** same place. Plows. Apr. 2, 1867.

Claim. The combination of the plates E and F, cam and handle K H, the standard D, shovel S, and rod c, arranged and operating substantially as and for the purposes specified.

**66,031. D. J. KIRKMAN,** and **E. H. GRAY,** Winchester, Ill. Plows. June 25, 1867.

Claim. 1. The employment of a subsoil plow F, when attached to the adjustable bar m, said bar being constructed and arranged in the manner herein specified.

2. The adjustable bar m, double jointed arm h, and hook i, the whole combined in the manner and for the purpose set forth.

**66,597. JOHN A. KRAKE,** Alden, N. Y. Subsoil Attachments to Plows. July 9, 1867.

Claim. 1. The combination and attachment of a subsoil plow to a common plow in such manner that it shall be drawn in the line of draft of the common plow to which it is attached and be free to oscillate right and left and vertically without throwing it out of the line of draft, substantially as described.

2. The connecting spring l, applied and used for the purpose and substantially as described.

3. The spring J applied and used in combination with the standard F and bracket G, for the purpose and substantially as described.

4. The bracket G, having a friction roller h as a means of supporting and guiding the standard of the subsoil plow, substantially as described.

**69,099. M. R. JONES,** Bradford, Wis. Subsoil Plows. Sep. 24, 1867.

Claim. 1. A subsoil plow combined with a common plow so that the bottom of the preceding furrow may be plowed by the subsoil plow immediately forward of the furrow slice that is being turned by the common plow substantially as and for the purposes described.

**2.** Subsoil plow I, shank K, with countersinks therein substantially as described, thumb screw  $\rho$ , bar L, draft rod C, and beam H when the whole are constructed together and used substantially as and for the purposes described.

**3.** Beams C and H in combination with the devices L  $\&$  and  $\pi$  and M  $\alpha$  and  $\epsilon$  and the equalizing bar G, for the purpose of adjusting the distance between C and H substantially as and for the purposes described.

**4.** A general arrangement and combination of the parts P D G H K C I M and O, when the whole are connected together and used substantially as and for the purposes described.

**69,117. WILLIAM D. NICHOLS and NELSON W. CLARK.** Chicago, Ill. Plows. Sep. 24, 1867.

The upright standard of the subsoil plow is connected to the beam by the clasp, and to the inside of the land-side by the strap. The colter connects the subsoil plow to the land-side, and is bolted thereto.

Claim. **1.** Attaching the subsoil plow C to the land-side and beam of a plow, as described.

**2.** The colter D as described.

**74,327. WILLIAM P. EVERDON,** Leavenworth, Ind. Plows. Feb. 11, 1868.

Claim. **1.** The hollow plow-share adapted to excavate, elevate, and scatter the subsoil without material disturbance, of the surface, substantially as set forth.

**2.** The provision upon the outside of a tubular plow A, of the deflecting plate or guard E, for the purpose explained.

**3.** The provision of the adjustable scoop or excavator C, at the rear lower portion of the tubular share A, for the object stated.

**74,885. JEREMY BRADLEY,** Owatonna, Minn. Plows. Feb. 25, 1868.

Claim. The combination and arrangement of the plow A, standard B, and clasp C, in the manner and for the purposes herein specified.

**75,419. CHARLES HAYDEN,** Collinsville, Conn. Subsoil Plows. Mar. 10, 1868.

Claim. **1.** The share standard F, fitted in the plates E G, and retained at the desired height by the pin  $\alpha$ , in one of a series of holes  $c$ , substantially as and for the purpose specified.

**2.** The combination of the lever I and pins  $e$  with the share standard F, all constructed, arranged, and applied substantially in the manner as and for the purpose set forth.

**76,275. S. D. TUTTLE,** Eaton, Ohio. Subsoil Plows. Mar. 31, 1868.

Claim. **1.** The screw-clip C, furnished with the thumb-screw  $\epsilon$ , substantially as and for the purpose set forth.

**2.** The screw-clip C, in combination with the subsoil attachment S, substantially in the manner and for the purposes specified.

**3.** The brace T, in combination with said subsoil attachment, as and for the purpose described.

**4.** The weeding attachment E, substantially as and for the purpose set forth.

**5.** The combination of the lever or rod  $\pi$  with the guide N, as and for the purpose specified.

**6.** The clip C, subsoil attachment S, brace T, handles B B, weeding attachment E, rod or lever  $\pi$ , and guide N, the whole being constructed and arranged substantially in the manner and for the purpose set forth.

**76,627. CHARLES R. HARTMAN,** Vincennes, Ind. Subsoil Plows. Apr. 14, 1868.

Claim. **1.** The concavo-convex and triangular shovel D, secured to an extended heel piece  $d$  of the colter C, and abutting against the shoulder  $e$  of said colter, substantially as described.

**2.** The construction of the colter C upon the standard C', so that the upper portion of the cutting edge of this colter shall form an obtuse angle with the front edge of the standard C, in combination with the shovel D, applied substantially as described.

**3,076. CHARLES R. HARTMAN,** Vincennes, Ind. Subsoil Plows. Patent No. 76,627, Apr. 14, 1868. Reissued Aug. 11, 1868.

Claim. **1.** A colter, constructed as described, and provided with the standard C and the rear projection  $d$ , as a new article of manufacture, substantially as and for the purpose described.

**2.** The combination, with the colter and its standard G, of the adjustable guide box  $\alpha$ , substantially as and for the purpose described.

**3.** The combination with the hooks C and beam A, of a chain or other suitable bracing support, having an adjustable connection either with the hooks or beam, substantially as and for the purpose described.

**80,356. J. C. LEONARD and J. J. GOBAR,** Clinton, Mo. Subsoil Plows. July 28, 1868.

The auxiliary plow is attached to the ordinary plow by a hook, fastened to the beam of the former and catching upon a bar extending from the landside to the share of the latter.

Claim. The subsoil plow A, constructed substantially as described, in combination with the sod or other plow C, all as set forth.

**80,715. JOHN FISHER,** Middletown, Pa. Plows Aug. 4, 1868.

Claim. The adjustable wing C, when used in combination with a subsoil plow, B, and constructed and arranged as and for the purpose herein fully set forth.

**83,030. M. BERDAN,** Maumee City, Ohio. Plows. Oct. 13, 1868.

Claim. The slotted bar F, and screw-rods E and H, so arranged that the share G can be adjusted both vertically, laterally, and longitudinally, as specified.

**83,472. JOHN CUSTER,** Corsica, Ohio.

Subsoil Plows. Oct. 27, 1868.

Claim. 1. The share bar D I K, with slots *d* and *h*, when constructed and used in combination with the plow beam A and rear beam B, substantially as and for the purpose herein specified.

2. The peculiar arrangement and combination of the share and shoe F G, bolts *f f*, and share bar D I K, the several parts being arranged substantially as and for the purpose specified.

3. The peculiar arrangement and combination of the share and shoe F G, with common point *g*, the cutter E, share bar D I K, and plow beam A, the several parts being arranged substantially as and for the purpose specified.

**87,594. GAIN ROBINSON,** Plymouth, Ohio. Plows and Subsoilers. Mar. 9, 1869.

Claim. 1. The plow E, beam F, links J, and spring K, as arranged and operated by the lever I, in combination with the plow A, substantially as and for the purpose set forth.

2. Attaching the false land-side A' to the plow by means of the hooks B' substantially as specified.

**89,432. JAMES B. PULLMAN,** Los Angeles, Cal. Subsoil Plows. Apr. 27, 1869.

Claim. The combination in a subsoil plow of the share E, colter D, and heel plate G, with the stock A B C, substantially as and for the purpose herein shown and described.

**91,657. JAMES W. MURFEE,** Havana Ala. Subsoil Plows. June 22, 1869.

Claim. 1. The wedge-shaped share herein described, the upper surface being composed of two or three inclined planes, the under surface being hollowed out (arched) and beveled so as to form wedge edges below upon the sides and front substantially as specified.

2. The reversed truncated wedge shaped heel elevated toward the rear substantially as specified.

3. The arrangement of the colter shank, in rear of the greatest transverse diameter of the wedge and acutely thereto, so that the power is applied as near as practicable, in the direction of the axis of the point, substantially as specified.

4. The arrangement of the standard of the frame in a line with a colter shank and handles parallel to a line, which in direction, is a mean between the line of the shank and point, or nearly so, substantially as specified.

**3,616. JAS. W. MURFEE,** Havana. Ala. Subsoil-Plows. Patent No. 91,657. June 22, 1869. Reissued Aug. 24, 1869.

Claim. 1. The wedge-shaped concavo-convex share, hoe, or point herein described, the upper (convex) side being composed of inclined triangular surfaces, the under (concave) side in all cases being arched and beveled so as to form as nearly as the kind of metal used will

allow feather edges upon the sides and point, reducing the friction to a minimum thus allowing the plow to pass through the earth as easily as possible, and by these means making the plow a self-sharpener substantially as specified.

2. The reversed truncated wedge-shaped heel elevated toward the rear substantially as specified.

3. The arrangement and set of the colter-shank in rear of the greatest transverse diameter of the wedge and as acutely as practicable thereto, substantially as described.

4. The arrangement of the standard of the frame as near in a line with the colter shank as practicable and the handles parallel to a line which in direction is a mean between the line of the shank and point, or nearly so, substantially as specified.

5. The herein described, share or point, either separately or in combination with an elevated heel as specified.

6. The peculiar set and arrangement of the colter-shank, standard of frame, handles, and beam, substantially as herein specified.

**94,307. J. C. GROSS,** Goshen Hill, S. C. Subsoil Plows. Aug. 31, 1869.

Claim. The combination of the curved or semi-circular bar D, staples F, and screw nuts G, with the standards E J and beam A of the plow as herein shown and described, for the purpose specified.

**100,780. THOMAS T. MATTOX,** Griffin, Ga. Plows. Mar. 15, 1870.

Claim. The combination of the stationary arm C and adjustable subsoil plow standard D with the plow-standard B and plow beam A, substantially as herein shown and described, and for the purpose set forth.

**102,825. ROSS JOHNSON,** Lawrence, Kan. Subsoil Plows. May 10, 1870.

Claim. The herein described, subsoil attachment for plows provided with the angular loop or hook *a*, at its forward end and a setscrew *c*, at the rear end of the loop and with the curved knife edge *d b* extending down to the removable blade B substantially as and for the purposes herein set forth.

**105,103. JAMES T. MATHIS and GEO. W. HARRISON,** Kosciusko, Miss. Plows. July 5, 1870.

Claim. The combination and arrangement of the standard D, subsoiler E, with slot *d'* and bolt *d* brace D', and arm *f* as described.

**105,551. THOMAS L. COTTON,** Madison county, Miss., assignor to Martha J. Cotten, same place. Subsoil Plows. July 19, 1870.

Claim. The colter C, having a diamond-shaped or arrow head point or shoe C', brace-bar D, when said bar and the colter are permanently connected, arm E, and stirrup F, when the same are so constructed as to render the colter and its brace adjustable as shown

the whole being combined and arranged substantially as described.

**105,844. ELAM M. QUERY,** Harris, Depot, N. C. Subsoil Plows. July 26, 1870.

Claim. The arrangement of the beam C, stock A, ratchet-plate *a*, bolt *b*, nut *d*, subsoil beam E, and clevis H, all constructed and operated substantially as set forth.

**106,192. JAMES W. MURFEE,** Havana, Ala. Attachments to Plows. Aug. 9, 1870.

Claim. 1. In a subsoil plow the openers A B C D and *a b c d* having brackets *f f* in combination with the colter having projections *p p p* substantially as above described.

2. In a subsoil plow the scrapers *k i x w z g* and *g h t s u v* having brackets *f f* in combination with the colter having projections *p p p* constructed substantially as specified.

**106,193. JAMES W. MURFEE,** Havana, Ala. Subsoil Plows. Aug. 9, 1870.

Claim. In a subsoil-plow, the mortised heel *h*, to the end of the colter shank, in combination with the tenon *d*, attached to the point of the plow, and secured in place by the screw *s* and tap *t*, substantially as specified.

**108,002. LUTHER E. BURDIN,** Paris, Ky. Subsoil-Plows. Oct. 4, 1870.

Claim. The subsoil-pulverizing attachment herein described, consisting, essentially, of the parts *a a'*, *e e*, *s*, and *d*, when constructed to operate substantially in the manner and for the purpose described.

**108,164. LUCIAN V. B. MARTIN,** Tuscaloosa, Ala. Subsoil-Plows. Oct. 11, 1870.

Claim. The shank and shovel, formed in one piece, when applied to the inclined or beveled stock A, and provided with the cutting-edges *d* and *e*, all constructed and arranged in the manner described, to operate as specified.

**108,329. LEONARD CARLETON,** Pomeroy, Ohio. Subsoil Plows. Oct. 18, 1870.

Claim. The combination, with a subsoil-plow-iron, I, of the sole K and the two adjustable standards J L, constructed and relatively arranged as and for the purpose described.

**108,485. JOHN HARVEY JOHN-  
SON,** Bentonville, Ark. Subsoil-Plows. Oct. 18, 1870.

Claim. 1. The standards *d* and *c*, provided with depressions *i* and holes *j*, respectively, and the plowshares *g* and *k*, arranged relatively one to the other, and to the beam *a*, in the manner and for the purpose hereinbefore specified.

2. The bar *o*, ratchet-toothed spring *r*, and harrow and packer *p q*, arranged relatively to each other and to the plow-beam *a* and standard *c*, in the manner described, for the purpose specified.

**108,860. JOHN W. WEBB,** Cotton Valley, Ala. Plows. Nov. 1, 1870.

Claim. The arrangement of the colter B, standard F, subsoil-plow H, and double brace J, with the beam A, as specified.

**108,939. ALBERT F. ROBERTS,** Lexington, Ky. Subsoil-Plows. Nov. 1, 1870.

Claim. 1. The standard E, composed of the portion E', attached to the shovel L, and the portion E'', constituting the colter, with the foot R, with the adjustment composed of the slotted strap A, provided with the projections *m*, set-screw C, plate F, and nut H, substantially for the uses and purposes shown and set forth.

2. In a plow, cultivator, or subsoil attachment, the device A, provided with projections *m*, for the uses and purposes described and shown.

**108,975. ROBERT S. CROCKETT,** Rossville, S. C. Plows. Nov. 8, 1870.

Claim. In combination with the upright adjustable perforated bar B, carrying a subsoil-point, A, the adjustable curved brace C, bearing a turning-mold, D, when constructed and arranged to operate in the manner and for the purposes specified.

**110,525. TOLBERT G. WILDER,** Camden, Miss. Subsoil Plows. Dec. 27, 1870.

Claim. The herein-described subsoil-plow, consisting essentially of the beam A, standard C, share and heel-piece D, rigidly attached thereto, and pivoted and adjustable brace E, pins F F, and plates F G, when arranged as specified.

**110,550. JOSIAH CLIFTON,** Georgetown, Texas. Plows. Dec. 27, 1870.

Claim. The arrangement of the beam A, handles B B', bar C, landside D, share E E, rods *b b*, rounds G G, beam I, bar J, with plow K, and spring L, all substantially as shown and described.

**111,033. HIRAM R. BOWEN and LO-  
RENZO D. ROBNETT,** New Washington, Ind. Plows. Jan. 17, 1871.

Claim. The subsoil-plow herein described, composed of the beam, handles, and standard, as shown, and twisted, sharpened upright A, with flange A', concavo-convex shovel B, and sole or shoe C, all constructed and arranged, relatively to one another, as set forth.

**111,428. JOEL L. BOND,** St. Louis, Mo. Subsoil-Plows. Jan. 31, 1871.

Claim. 1. The arrangement of the bent bar G, clamps *b b* and *d*, adjustable bar H, and plow D, constructed as described, and used in combination with a single plow to form a gang-plow or a subsoil-plow, as herein set forth.

2. The combination of the beam A with its plow D, the bent bar G, subsoil-plow D', frame I, wheel J, and grain-drill attachment K, all constructed and connected together as described, so that the subsoil will be turned over and

cover the seed by the plow D', while the plow D at the same time makes a new furrow, substantially as herein set forth.

**111,852. ROSS JOHNSON,** Lawrence, Kans. Plows for Subsoiling. Feb. 14, 1871.

Claim. The combination of the shank A, made in two pieces hinged together, and provided with the plate C, secured by the bolts  $\alpha$   $\alpha$ , all substantially as set forth.

**114,855. THOMAS H. REYNOLDS,** Rome, Ga. Plows. May 16, 1871.

Claim. 1. The slotted plate E, provided with the shoe d, and combined with the plow-share and standard, substantially as and for the purpose herein shown and described.

2. The suspended slide G, arranged on the plate E to constitute the landside of the plow, substantially as herein shown and described.

**115,543. ROBERT THEMAR and BRAND BROTHERS,** Sheboygan, Wis. Subsoil-Plows. May 30, 1871. Antedated May 22, 1871.

Claim. The subsoil attachment herein described for plows and wheel-cultivators, consisting of the ground-bar  $\alpha$ , front and rear connecting-arms  $b$   $b$  with forward sharpened edges, recess  $y$ , and convex point D, when constructed and combined as and for the purpose specified, substantially as shown and described.

**115,629. JAMES G. MINER,** Nashville, Tenn. Plows. June 6, 1871.

Claim. 1. The combination of the full-turning mold-board with the rear of the colter of a subsoil-plow for the purposes above set forth, and constructed and operating as described, and this whether the same be attached to the colter in the manner herein described or is made stationary thereon.

2. The oscillating shaft J and wings P, constructed and arranged substantially as and for the purpose above set forth.

3. The mole N, elongated at the rear of the colter B, substantially as and for the purpose above set forth.

4. The combination of the mold-board A, colter B, lugs C, D, F, G, H, and K, pin E, parts I, shaft J, wings P, rod L, eyes M, and beam N, substantially as and for the purposes set forth.

**117,662. JAMES G. MINER,** Nashville, Tenn. Plows. Aug. 1, 1871.

Claim. 1. The mole A, longitudinally arched from front to rear, with its under surface recessed at rear, and having a mortise  $a'$ ,  $b''$ , on top and in front of its greatest sectional area to receive and surround the tenoned foot of the colter B, which is secured thereto by the bolt  $b'$ , substantially as represented and described.

2. The combination and arrangement, in a subsoil or mole plow, of the beam C and colter B, enabling the latter to be shifted forward or backward, and secured by means of the ver-

tical holes  $c$   $c$  in said beam, and bolts passing perpendicularly there-through, so that said plow can be used either as a one-horse or two-horse plow, substantially as specified.

**118,567. NICHOLAS WHITEHALL,** Newtown, Ind. Sulky-Cultivators. Aug. 29, 1871.

Claim. The improved machine formed by the arrangement of the tooth-bars G G and L L and foot-supports or levers, center-beam J, beams J J and N N, cross pieces H and M, bent axle C, cross-piece D, bar E, and bearing-bars B B, as shown and described, operating as specified.

**118,890. ALEXANDER H. WHIT-TICK,** Clarksville, Ind. Plows. Sep. 12, 1871.

Claim. 1. The subsoil attachment D, a section of which at  $x$   $x$  presents the form substantially as shown in Fig. 2.

2. The combination of the subsoil attachment D, a section of which at  $x$   $x$  presents the form substantially as shown in Fig. 2, with the beam A of an ordinary plow, and the adjustable brace E, arranged in relation to one another as set forth.

**118,945. ROSS JOHNSON,** Lawrence, Kan. Plows. Sep. 12, 1871.

Claim. The combination, with the mold-board of a plow, of the shank or subsoil-hook D, upright bar A, and brace E, all constructed and arranged as described, so that the mold-board will form the point of resistance to the upward strain of the subsoiler, substantially as herein set forth.

**122,261. DANIEL MARTIN LAMB,** Strathroy, Canada, assignor to himself and Van Ransselaer Warren, Somerville, Mass. Plows. Dec. 26, 1871.

Claim. The combination of the corrugated bearing-wheel A and subsoil attachment C C D with a plow, in manner substantially as and for the purpose specified.

**125,930. WILLIAM B. BRADFORD,** Charlotte, N. C. Plows. Apr. 23, 1872.

Claim. The arrangement of the slotted adjustable standard F and stay or brace-rod H with the pivoted handles D and with the plow-beam A  $a'$ , said parts being constructed and operating substantially as herein shown and described, and for the purposes set forth.

**126,077. TALEMACHUS NABERS,** Elyton, Ala. Plows. Apr. 23, 1872.

Claim. 1. The subsoil-plow iron, composed of the standard D with inclined foot v, and the flat share G, of the form shown, supported on said foot, and secured by notch x and bolt w, said parts being constructed and combined as herein described, for the purposes set forth.

2. The slotted beam A, with downward extension z, the slotted bar C, standard D, colter E, and keys F, combined and operating substantially as represented and described, for the purposes specified.

**127,475. HENRY GILLETTTE,** Millville, N. Y. Plows. June 4, 1872.

Claim. In combination with the cross-bar I and the notched bar B, provided with the eye M, the confining bar H, and link L, substantially as shown and described.

**131,391. THOMAS E. C. BRINLY,** Louisville, Ky. Subsoil-Plows. Sep. 17, 1872.

Claim. The combination of the wedge-shaped standard A A<sup>1</sup>, having a forward declination, shoulder at a', flanges A<sup>2</sup>, and sole A<sup>3</sup>, and the share B, having a slot, b, in its rear edge, and a socket, b', in its point B', all substantially as specified.

**131,636. WILLIS H. SMILEY,** Bentonville, Ark. Plows. Sep. 24, 1872.

Claim. The subsoil attachment A a' B, constructed as described and adapted to be attached between the handles and along-side the beam of an ordinary turn plow, as described.

**132,707. DAVID M. ALLEN,** Jeffersonville, Ind. Plows. Nov. 5, 1872.

Claim. The improved adjustable subsoiler, having the solid head E when constructed with the curved cutting edges F F F arranged side by side as herein shown and described.

**133,167. CHRISTIAN MEYERS and WILLIAM GUMMOW,** Marysville Cal. Subsoil Plows. Nov. 19, 1872.

Claim. The combination of the vertically-adjustable plow-standard K eccentrically slotted elbow lever N, and stud-pin P, substantially as specified.

**133,216. SAMUEL E. FLETCHER,** Ballstown, Ind., assignor of one half his right to Frederick Talkenberg, same place. Subsoil Plows. Nov. 19, 1872.

Claim. A subsoil plow composed of the share A, standard B, having notches b, slides C c' and tie-rods E e substantially as described.

**133,722. FRANCIS REESE,** Wilsonville, Ala., assignor of one-half his right to Samuel F. Coleman, same place. Plows. Dec. 10, 1872. Antedated Dec. 7, 1872.

Claim. The plow herein described, provided with reversible rhomboidal shovel N, with mold board O, gageable arm R with bolts r' r' subsoil gageable foot P with bolt S, and pivot r all constructed, arranged, and operating substantially as herein set forth and shown.

**135,829. JOHN LOVE,** Cusseta, Tex. Plows. Feb. 11, 1873.

Claim. The subsoiler D, pulverizer C, and furrow opener E, provided with long shanks F relatively adjustable through plates B' B and long oblique slot of beam A' as and for the purpose set forth.

**136,245. JOHN T. HUNTER, and DANIEL L. H. MITCHELL,** Forest, Miss. Plows. Feb. 25, 1873.

Claim. 1. The combination of the beam G with the collar H and its spring follower, as and for the purpose set forth.

2. The combination of the adjustable beam G collar H, and the set screw f for regulating the beam, all substantially as set forth.

3. The combination of the beam G with diagonal dovetailed groove in one side with the subsoiler I, provided with a slotted shank m, which is passed into said groove and held by a set screw all substantially as set forth.

**136,254. KENHETH McKINNON,** Bleasant, Hill, Ala. Cultivators. Feb. 25, 1873.

Claim. 1. In combination with the front and rear standards C and D united to each other as described, the adjustable grooved standard F with its foot k and cultivator share constructed and arranged substantially as described.

2. In combination with the adjustable standard F and cultivator-share arranged as described the notches s in the front standard C for securing and bracing the notched point of the share at any height corresponding with the adjustment of the supporting-standard F, substantially as described.

3. The cultivators shares G H I provided with notches t u at their upper and lower points of attachment to brace them laterally to the standard C F, to which they are secured.

4. The combination and arrangement of the standards C D and the adjustable standard F with their foot branches c d and k the subsoil point, E, and the cultivator-share made adjustable in the notched standard C the several parts being constructed and arranged for use as described.

**136,726. JOHN W. HOWARD,** Greenville, Ala. Subsoil Plows. Mar. 11, 1873.

Claim. 1. The wing G, constructed as shown and described, and attached to the blade C so that the point of the wing will be nearly in rear of the cutting edge of the blade substantially as and for the purposes herein set forth.

2. The combination of the plate C, strip D, rest E, and wing G, all constructed and arranged substantially as and for the purposes herein set forth.

**137,894. THOMAS L. COTTON,** Water Valley, Miss., assignor to Martha J. Cotton, same place. Plows. Apr. 15, 1873. Filed Jan. 29, 1873.

Claim. In combination with the device embraced in my patent of July 19, 1870, the slot and openings E in the standard D, saddle H, and bolts and nuts e e and h h the whole being so constructed as to permit of the mold-board or blade being secured and adjusted substantially as described.

**138,197. JACOB ROOP,** Clinton, Tenn. Plows. Apr. 22, 1873. Filed Mar. 12, 1873.

Claim. 1. The mold-boards G G, in combination with the rods d d and handles H H, as and for the purpose set forth.

2. The standard I in combination with the handles H, as and for the purpose described.

3. The combination of the grooved standard C movable mold-boards G G rods d d and handles H II, all substantially as and for the purposes herein set forth.

**140,460. GREEN B. BRIMINGHAM,** Trenton, Tenn. Subsoil-Plows. July 1, 1873. Filed Nov. 9, 1872.

Claim. 1. The subsoiler, as described, having the diamond-shaped point G, raised neck H, and scoop-shaped wings I, substantially as described and shown.

2. The slotted and removable bar Q in combination with the guiding-frame T, having a removable and clamping bolt Y, and united with the plow-standard by a detachable arm, substantially as shown and described.

3. The clamp O, wrench P, and set-screw h, in combination with the standard L and removable bolt M, constructed and arranged substantially as and for the purpose herein specified.

**140,660. AUGUSTUS L. P. VAIRIN,** Ripley, Miss. Subsoil-Plows. July 8, 1873. Filed Apr. 19, 1873.

Claim. The toe a<sup>2</sup>, ribs or flanges a<sup>3</sup>, lugs a<sup>4</sup>, slot b<sup>2</sup>, enlarged at its rear end, and the wedge-plug C, for securing the share B to the standard A, substantially as herein shown and described.

**143,335. EDWARD CUTCLIFFE,** East Bethany, N. Y. Subsoil-Plows. Sep. 30, 1873. Filed July 30, 1873.

Claim. 1. The cross-brace D, having clips in the slots in each end, adapted to accommodate the varying widths of plow-handles, and a collar, D', and combined with standard B, in the manner and for the purpose set forth.

2. The brace C, connected with the standard B at one end, and with the mold-board at the other, and provided with a double or single joint, as set forth.

3. The clips E, when combined with the slotted adjustable cross-brace D, and with the wedges H, and adapted to, and used in combination with, the plow-handles, in the manner and for the purpose set forth.

4. The subsoil foot or attachment combined with the plowshare and handles, and arranged to be moved vertically, and its point raised or lowered, all in the manner and by the means described and set forth.

**144,487. JOHN R. TURNER and JACOB JACOBS,** Fredericktown, Mo. Subsoil-Plows. Nov. 11, 1873. Filed Sep. 13, 1873.

Claim. The notched bar G and shovel H, constructed and combined with each other, and with the cutter E of a subsoil-plow, substantially in the manner herein shown and described.

**144,653. ELIJAH BOURNE,** New Iberia, La. Plows. Nov. 18, 1873. Filed Apr. 17, 1873.

Claim. 1. The clevis F, rods H, I, and J,

and cross-bars h, i, and j, in combination with the plank A, frame e, thumb-screw G, and plows C, D, and E, substantially as and for the purpose hereinbefore set forth.

2. The movable foot-rest M, having a shoe, r, on the lower end, in combination with the plank A, frame e, chains o and p, arms N and O with slot S, slide Q, and pins t and T, substantially as and for the purposes hereinbefore set forth.

**145,222. KENNETH MCKINNON,** Pleasant Hill, Ala. Cultivator Plows. Dec. 2, 1873. Filed May 31, 1873.

Claim. 1. The combination of the separate diagonal and annular braces G H with the plow-standard A, the beam C, and the clamping devices I and L, constructed and arranged substantially as described.

2. The brace N, in combination with the braces G H, the screw-coupling B, and the standard B, as and for the purpose described.

**152,201. WILLIAM WARINNER,** Creelsborough, Ky. Plows. June 16, 1874. Filed Apr. 18, 1874.

Claim. 1. The wing or wings E, provided with a grooved and tongued rib, e', in combination with the grooved rear edge of the standard B, substantially as herein shown and described.

2. The U-bar I and bolt J, in combination with the handles H, the plow-beam A, and the standard B, to serve as a support to said handles, and a collar to said beam and standard, substantially as herein shown and described.

**153,587. A. L. MANNING,** Booneville, Miss. Subsoil-Plows. July 28, 1874. Filed June 13, 1874.

Claim. The bar H, of right-angled form, having horizontal and vertical slots, the clamp J, adjustable bolts I I, and bracket G, in combination with the subsoil-standard E and plow-frame A C, as shown and described.

**154,106. E. S. WATSON,** St. Louis, Mo., assignor of three-fourths his right to H. L. Duncan, C. Montgomery, and J. M. Allen, Water Valley, Miss. Plows. Aug. 11, 1874. Filed Jan. 17, 1874.

Claim. The plow-beam A, stock B, diagonal brace D, sole-bar C, and stilt E, all constructed in one piece, as described.

**155,249. J. T. MANGHAM,** Rainey's Creek, Tex. Subsoil-Plows. Sep. 22, 1874. Filed June 20, 1874.

Claim. The curved head C' of the plow-standard C, having at its rear end a curved slot, h, in combination with beam A, having slot g, the bolt F, and nuts, substantially as and for the purpose set forth.

**155,438. IRA M. GRIFFIN,** Maryville, Mo. Subsoil-Plows. Sep. 29, 1874. Filed June 27, 1874.

Claim. The combination of the subsoil-plow plate F, the adjustable curved standard G, and

the adjustable braces H with the standard B, the foot C, the double point D, the double mold-board E, and the handles I, substantially as herein shown and described.

**8,342. IRA M. GRIFFIN,** Maryville, Mo. Subsoil-Plows. Patent No. 155,438, Sep. 29, 1874. Reissued July 23, 1878. Filed July 3, 1878.

Claim. 1. The combination of the subsoil-plow plate F, the adjustable curved standard G, and the adjustable braces H with the standard B, the foot C, the double point D, the double mold-board E, and the handles I, substantially as herein shown and described.

2. The double plow E D and the subsoil-plow F, combined and arranged together as and for the purpose set forth.

**159,967. ARTEMAS RIGBY,** Upper Stillwater, Me. Plows. Feb. 16, 1875. Filed Dec. 21, 1874.

Claim. The subsoil-plow having the standard C, landside E, and share G, the share having cutters d d, with a shoe, g, upon its outer side, parallel with and upon the same plane as the landside, substantially as and for the purpose set forth.

**162,962. DAVID B. SMITH,** Bastrop, La. Plows. May 4, 1875. Filed Apr. 6, 1875.

Claim. The combination, with the subsoil-plow having its shank perforated with adjusting-holes of the diagonal strap G, detachable plate H, and central bolt f, substantially as and for the purpose described.

**164,730. AUGUSTUS GRIGGS,** La Fayette, Tenn. Plows. June 22, 1875. Filed May 1, 1875.

Claim. The combination of the standard B, made with a concaved shoulder or offset upon the forward side of its lower part, the mold-board C, the point D, and the cutter and brace F, with the beam A, in substantially the manner herein shown and described.

**169,799. IRVIN FREEMAN,** Corpus Christi, Tex. Plows. Nov. 9, 1875. Filed Sep. 11, 1874.

Claim. The combination with hook rod E, holding shovel or subsoil plow to skeleton frame of the lever C, having pawl e working in the beam rack a as and for the purpose specified.

**178,087. WM. H. SUTTON,** Purdy, Tenn., assignor to himself and Isaac W. Nash, same place. Plows. May 30, 1876. Filed Apr. 18, 1876.

Claim. The combination of the pivoted bar E, the lever F, and the supporting bar H, with the plow standards G, and the beam A, substantially as herein shown and described.

**184,171. A. A. PORTER,** Griffin, Ga. Subsoil Plows. Nov. 7, 1876. Filed May 10, 1876.

Claim. 1. The combination with the mor-

tised plow beam A, of the adjustable standard C, adjustable colter D, and the adjustable brace D', the colter and brace being connected on opposite sides of the standard, and all three held in the mortised plow beam by pins a d, as and for the purposes herein set forth.

2. The combination with the standard or foot C, having shoulders x of the blades G G, secured on opposite sides in rear of said shoulders, and the wings G', provided with the downward-projecting flanges ff and lugs y y, and all connected by the bolts h substantially as and for the purposes herein set forth.

**185,108. BENJ. F. JONES,** Beauregard, Miss. Plows. Dec. 5, 1876. Filed Oct. 18, 1875.

Claim. In combination with the slotted plow beam a the subsoiler c d having a series of perforations along its rear edge, and vertically adjustable through the plow beam, the mold-board b provided with the lug z on its bottom, and connected to the subsoiler by the bolt w, and also connected to the plow beam by means of the angular bar o and the vertical adjusting bolt g all substantially as and for the purposes herein set forth.

**187,637. JAMES JARRELL,** Thorn-town, Ind. Subsoil Plows. Feb. 20, 1877. Filed Sep. 16, 1876.

Claim. The combination of adjustable mold-board C with subsoil share D, and cutting-blades H H substantially as and for the purpose set forth.

**189,912. C. ATKINSON,** Monterey, Ill. Plows. Apr. 24, 1877. Filed Feb. 17, 1877.

Claim. 1. The combination of the following elements: the double plow I, to turn opposite furrows the rolling colter F, to divide the same and the subsoiler M N having cam O, all regulated in working depth by the cam lever P, raising the plow beam upon the axle B, substantially as shown and described.

2. The combination of the eccentric lever O with the subsoil standard M and plow beam D, substantially as herein shown and described.

3. The combination with the mold boards I, of the braces J K, and bar L, constructed and arranged substantially as and for the purpose specified.

**199,558. LEONARD J. LOWE,** Ashland City, Tenn. Plows. Jan. 22, 1878. Filed Sep. 1, 1877.

Claim. 1. The combination of the beam A having the vertically adjustable plow B, beam C, having the vertically adjustable plow D, and slotted braces E F provided with the set screws e' e'' f' f'' g' g'' and h' h'' substantially as and for the purpose herein shown and described.

2. In combination with the plow beam A, the device for adjusting and regulating the line of draft herein described, consisting of the curved bar G, pivoted at i, and having shoulder

*p.*, lever *H*, and arm *I*, all constructed and combined to operate substantially as and for the purpose herein shown and specified.

3. The combination of plow beam *A*, draft-regulating device *G H I*, and supplemental plow beam *C*, substantially as and for the purpose herein shown and set forth.

**199,750. ARCHIBALD SIPE,** River Bank, Va. Plows. Jan. 29, 1878. Filed Oct. 26, 1877.

Claim. 1. The combination with pivoted standard *A*, swinging brace *F*, and shovel *D*, or other substituted plow working part as described of link *E*, and wedge *G*, the latter being held in place by detent *h*, formed in same piece therewith and engaging with notches on the rear side of the standard together with set screws *H*, having end bearing against the latter, substantially as set forth.

2. The combination with share *C*, or other substituted plow working part as described, which engages with catch *c* and lug *c'* formed on the lower end of standard *A*, of shovel *D*, or similar plow working part, made with lug *d* which seats in slot *a'* of said share the upper shank of the shovel being secured to the standard by the described, vertically adjustable clamping mechanism, substantially as set forth.

**200,755. WILLIAM J. PIRKLE,** Cuning, Ga. Plows. Feb. 26, 1878. Filed Aug. 10, 1877.

Claim. 1. The plow foot herein described, consisting of the side bars *C C* center bar *C* plow *D*, and front bar *G*, substantially as and for the purposes herein set forth.

2. In combination with the grooved plow foot provided with a movable wing on each side the rods *D<sup>2</sup>* *D<sup>2</sup>* connected to the levers *D<sup>3</sup>* the cord *i* and pulley *n* in the standard *m*, the ends of said cord being connected to the levers so that by pressing one lever down the other is thrown up thus reversing the wings and to make a right or left hand turning plow.

**229,455. ZEADOCK R. PERCEFULL,** Fort Smith, Ark., assignor of one-half of his right to Thomas Lanigan, same place. Plows. June 29, 1880. Filed Jan. 24, 1880.

Claim. The combination of the vertical standard blade *C*, the detachable and adjustable

mold-board *D*, fixed to the side thereof, the point *G*, arranged in advance of the point of the mold-board, and the share *E*, arranged in rear of the same, substantially as described.

**232,877. CHRISOSTOMUS BOUL,** Ogle Station, Ill. Oct. 5, 1880. Filed July 9, 1880.

Claim. The combination, in a cultivator, of the shovel *A* and the rear shovel *D*, said shovel *A* having the prongs *F F* and the detachable plates *a a*, substantially as described.

**240,558. EDWARD SQUIRES,** Beaverton, Ore. Plows. Apr. 26, 1881. Filed July 31, 1880.

Claim. In a combined plow adapted to be changed for various kinds of work, the vertically-adjustable standard *B* and plow-beam *A*, in combination with the brace *D*, bolted adjustably to the standard, and the handles *H*, bolted to said brace and pivoted to the plow-beam, whereby the adjustment of the standard regulates the pitch of the beam and the relative position of the various parts, substantially as shown and described.

**253,489. JOEL J. ADCOCK, GEO. J. LUMPKIN, and MILTON WHITE,** Subligna, Ga. Plows. Feb. 14, 1882. Filed Nov. 23, 1881.

Claim. The bifurcated frame *D*, formed of the two diverging arms *d'*, cross-heads *E*, having slots *e*, and pivoting-bracket *H*, combined with the beam *A*, pivotal bolt *d*, adjusting-bolt *f*, and tie-rod *m*, the frame being adapted to be applied to ordinary mold-board plows, as and for the purposes herein set forth.

**269,027. SAMUEL B. DOVER,** Subligna, assignor of one-half to John M. Write, Calhoun, Ga. Subsoil Plows. Dec. 12, 1882. Filed May 17, 1882.

The subsoil-standard is extended into a long shank or handle having a pawl or dog to engage with a ratchet and hold the plow in any adjustment.

Claim. The combination of the plow-beam, the frame *B'*, secured to its rear end, the subsoil-plow *D*, pivoted in the frame and provided with a dog, and the ratchet-plate *H*, substantially as shown.





## WEEK-TURNERS.

|                                   | <i>Plate</i> | <i>Claim</i> |                          | <i>Plate</i> | <i>Claim</i> |   | <i>Plate</i> | <i>Claim</i> |
|-----------------------------------|--------------|--------------|--------------------------|--------------|--------------|---|--------------|--------------|
| Ballard, U.                       | 1096         | 671          | Hill, D.                 | 1089         | 669          | Karick, B. F., W. P. and J.                     | 1097         | 671          |
| Banworth, W.                      | 1095         | 670          | Hoeelman, W. H.          | 1093         | 670          | Keelman, J.                                     | 1097         | 671          |
| Barrows, W. A.                    | 1095         | 671          | Hughes, D. W.            | 1096         | 671          | Richardson, L. B.                               | 1093         | 670          |
| Bier, J. W. and Wampler,<br>J. B. | 1090         | 669          | Hughes, W. J.            | 1093         | 670          | Russell, G. W.                                  | 1092         | 669          |
| Blodgett, E. A.                   | 1093         | 670          | Kennedy, R. V.           | 1099         | 672          | Sherrill, J.                                    | 1098         | 671          |
| Brinly, T. E. C.                  | 1089         | 669          | Kilmer, J.               | 1089         | 669          | Smith, M. T.                                    | 1090         | 669          |
| Cates, J. G.                      | 1089         | 672          | McDonel, G. H. Thorn,    | 1096         | 671          | Smith, G. B.                                    | 1092         | 670          |
| Collins, S.                       | 1091         | 669          | J. and Ewing, S          | 1091         | 669          | Smith, A.                                       | 1094         | 670          |
| Dodridge, L. M.                   | 1092         | 670          | Mattin, W. J.            | 1091         | 669          | Temples, J. J.                                  | 1098         | 672          |
| Dysarl, J. W.                     | 1094         | 670          | Mowry, A. J. and Chance, | 1094         | 670          | Thornton, J. B., McDonel,<br>G. H. and Hale, A. | 1095         | 670          |
| Eastwood, I.                      | 1092         | 670          | H.                       | 1094         | 670          | Tilton, D. L.                                   | 1089         | 669          |
| Harbough, J. R.                   | 1098         | 672          | Manson, J. D.            | 1097         | 671          | Vaggy, L. W. and Loope,                         |              |              |
| Harbert, T. M.                    | 1097         | 671          | Newton, R.               | 1095         | 670          | J. N.   | 1096         | 671          |
| Harper, C. A.                     | 1091         | 669          | Osburn, A. and Wulzen,   |              |              | Yardley, E. N.                                  | 1094         | 670          |
| Henry, J. C.                      | 1090         | 669          | E.                       | 1091         | 669          |   |              |              |

## WEED TURNERS.

3,777. **DUDLEY HILL**, East Hartford, Conn. Plow Gathering Hooks. Oct. 7, 1844.

Claim. The gathering hook H, as described and contemplated in the specification, applied to plows for gathering in grain, grass, weeds, &c., to turn them under the sod in plowing.

19,725. **DANIEL L. TILTON**, Mt. Carmel, Ill. Plows. Mar. 23, 1858.

Claim. The construction and arrangement, substantially as described, of the tines J, operating in the manner and for the purposes explained.

19,909. **THOMAS E. C. BRINLY**, Simpsonville, Ky. Plows. Apr. 13, 1858.

Claim. The grass-hook B, and its plate C, when constructed, arranged, and operated in relation to the beam and mold-board of the plow, substantially in the manner and for the purpose set forth.

45,454. **JOSIAH KILMER**, assignor to himself and Augustus Kilmer, Cobleskill, N. Y. Devices for Plowing in Stubble. Dec. 13, 1864.

Claim. The application to a plow-beam B and double-tree G of a drag chain A, substantially in the manner and for the purpose set forth.

46,755. **JOSIAH KILMER**, Barnesville, N. Y., assignor to himself and Augustus Kilmer. Plows. Mar. 7, 1865.

Claim. A regulator B, to be employed in combination with the drag chain C, in the manner and for the purposes set forth.

57,279. **JOSEPH W. BIER** and **JOHN B. WAMPLER**, Selbyville, Ill. Devices for Burying Weeds and Stubble. Aug. 21, 1866.

A frame attached to the beam collects the trash and turns it over so as to be covered by the furrow slice.

Claim. The herein described devices denominated "a weed burier," the same being attached to a plow-beam, in the manner and for the purpose herein set forth.

59,468. **M. T. SMITH**, Keeler, Mich. Plows. Nov. 6, 1866.

A concave-faced roller is journalled in an arm which is hinged to the beam. The trash is drawn in and covered by the furrow slice.

Claim. The roller F and bar D, connected together and applied to the plow-beam A, to operate in the manner substantially as and for the purpose herein set forth.

67,542. **JOHN C. HENRY**, Point Douglas, Minn. Plows. Aug. 6, 1867. The stubble turner is attached to the point

of the colter and curves over in front of the mold-board.

Claim. The combination of the mold-board C and the stubble turner B, arranged, constructed, and operating in the manner as shown and described.

73,181. **C. A. HARPER**, Wheeling, Ind. Cultivators. Jan. 7, 1868.

Claim. 1. The combination of the wheel D' with the cultivator frame A, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the spiral or screw plate H with the wheel D', and with the cultivator frame A B, substantially as shown and described, and for the purpose set forth.

74,398. **WILLIAM J. MARTIN**, Cat-awissa, Pa. Attachments for Plows. Feb. 11, 1868.

Claim. 1. The sweep or bar C, attached to the beam A, and arranged in relation with the mold-board D, substantially as and for the purpose specified.

2. The adjusting link c d, and tightening bolt f, in combination with the sweep or bar C and the beam A, substantially as and for the purpose specified.

3. The chain or brace D, arranged in relation with the sweep or bar C, and the beam A, substantially as and for the purpose specified.

74,666. **STEPHEN COLLINS**, Preston, Wis. Turning Down and Burying Stalks. Feb. 18, 1868.

The trash is caught by the arms and raked in so as to be covered by the furrow slice.

Claim. The arms C C' C'' and E and brace D, attached to the plow-beam, substantially as and for the purpose set forth.

86,245. **ADELBERT OSBORN** and **EDWARD WULZEN**, Streator, Ill. Stubble-Attachments for Plows. Jan. 26, 1869.

Claim. 1. The hook-lever E and hook F, constructed and operating in connection with an ordinary plow, substantially as herein shown and described, and for the purpose set forth.

2. The combination of the lever G with the hook-lever E and hook F, substantially as herein shown and described, and for the purpose set forth.

92,371. **GEORGE W. RUSSELL**, Rockford, Ill. Plows. July 6, 1869.

Claim. 1. A stubble-folding attachment to a plow, composed of the parts d, h, and k, in combination with the bolts c c' and plates a a', the whole constructed and operating substantially as and for the purpose set forth.

2. Constructing the parts a, d, and h as herein described, and for the purpose specified.

**94,578. LOYAL M. DODDRIDGE.**

New Mount Pleasant, Ind. Weed Gatherers for Plows. Sep. 7, 1869.

Claim. In combination with a plow, a device for turning down and burying weeds, &c., consisting of the hinged frame A, sliding-bar B, and clevis C, substantially as shown and described.

**106,344. ISAAC EASTWOOD.** Lanark,

Ill. Plows. Aug. 16, 1870.

Claim. 1. The bent bar C, having cutters  $a$   $a'$   $a''$  attached thereto and terminating in arm  $d$  when attached to, and made adjustable upon the beam A of a plow, in the manner and for the purpose described.

2. The adjustable and detachable cutters  $a'$   $a''$  and bar C, when arranged with relation to each other, and operating in the manner and for the purpose described.

**121,207. GEORGE B. SMITH,** Shopiere, Wis. Stubble-Turners for Plows. Nov. 21, 1871.

Claim. In the herein-described stubble-turner A, the angular shank  $a$   $a'$ , in combination with the strap  $b$  and bolt  $c$ , the angular shank, together with the strap and bolt, forming the locking device whereby the bar is secured to the plow-beam.

**127,549. EUGENE A. BLODGETT,** Columbus, Neb. Plows. June 4, 1872.

Claim. The arched device C, with its intermediate vertical shank B' and cutting-points  $c$   $c'$ , as described, in combination with the device  $a$   $a'$ , B  $b$   $b'$ , all constructed and applied as and for the purpose set forth.

**130,638. WILLIAM H. HOEFELMAN,** Columbus, Neb. Plow Colters. Aug. 20, 1872.

Claim. The vertically-adjustable colter A, in combination with the curved arm C, substantially as herein shown and described.

**140,434. LEVIN B. RICHADSON,** Carrollton, Ill. Plows. July 1, 1873. Filed May 31, 1873.

Claim. 1. The roller F, bent bar G, bent or looped bar H, draft-bar I, and adjustable brace-bar J, constructed and arranged in connection with each other, substantially as herein shown and described, to adapt them for attachment to a plow, as and for the purpose set forth.

2. The combination of the guard K with the roller F, the bent bar G, the bent or looped bar H, the draft-bar I, and the adjustable brace-bar J, substantially as herein shown and described, and for the purpose set forth.

**148,299. WILLIAM J. HUGHES,** Clyde, Ohio. Weed Turner Attachments for Plows. Mar. 10, 1874. Filed Jan. 27, 1874.

Claim. The plow attachment herein described, consisting of the tube-section C  $c'$  F, provided with the flaring mouth D and spiral grooves E, substantially as and for the purposes described.

**151,249. ALEXANDER SMITH,** Rockingham County, N. C. Weed Turning Attachments for Plows. May 26, 1874. Filed Apr. 7, 1874.

The block runs in the previous furrow and presses down the weeds till the earth falls upon them.

Claim. The weed-turner composed of the side and cross-pieces A B D F, in combination with the block  $b$  and teeth  $c$ , and attached to and operated in connection with a plow, as and for the purpose described and represented.

**162,210. ELISHA N. YARDLEY,** Tonganoxie, Kan. Attachments for Plows. Apr. 20, 1875. Filed Oct. 27, 1874.

Claim. The bent drag-bar H, pivoted to the plow-beam A, point K, and loop L, constituting a plow attachment, for the purpose specified.

**163,881. AARON J. MOWRY, and HENRY CHANCE,** Burgoon, Ohio. Weed Turners. June 1, 1875. Filed Apr. 15, 1875.

Claim. The clevis A, in combination with the hook C, of the shape shown, operating upon the swivel B, and attached to the clevis by the coiled spring D, substantially as shown and described.

**164,155. JOSEPH W. DYSARD,** Michigan City, Ind. Weed Covering Attachments. June 8, 1875. Filed May 1, 1875.

Claim. The wheel D, the adjustable curved and bent bar E, the hinged plate F, and the clamp G H I J, in combination with each other, to adapt the device to be attached to the beam of a plow, substantially as herein shown and described.

**169,058. JOHN B. THORNTON, GEO. H. McDONEL, and ALLEN HALE,** Fostoria, Ohio. Weed Turners. Oct. 19, 1875. Filed Sep. 10, 1875.

Claim. A weed-turner extending at a right angle beneath the plow beam, to which it is both pivoted and swiveled, with its shorter arm operating a spiral spring in a plane parallel to the vertical of the plow-beam, while it is laterally adjustable by the clamp-washer G, all constructed and operating substantially as shown.

**175,141. REUBEN NEWTON,** Sparta, Tenn. Grass Levelers. Mar. 21, 1876. Filed Dec. 18, 1875.

Claim. 1. In combination with the plow-beam A and transverse roller B, the bail C, plate D, having spaced perforations  $i$ , perforated hooked sleeve E, and pin f, substantially as described.

2. The combination of the laterally-adjustable and removable leveling-roller B with the beam A of a plow, substantially as specified.

**181,129. W. BANWORTH,** Elizabeth, Ill. Weed Turners for Plows. Aug. 15, 1876. Filed Aug. 14, 1875.

Claim. The curved bar B, having forward extending bar D, and secured to a plow-beam by the eyebolts G G, serrated plates C C', and nuts a a, all substantially as and for the purposes set forth.

**183,361. W. A. BARROWS,** Sycamore, Ill. Plow Fenders. Oct. 17, 1876. Filed Mar. 30, 1876.

Claim. The pivoted rod C, constructed to arch outward from the forward end of the plow-beam, and to incline downward and outward from said beam, and hinged, as shown, to the rear end thereof, combined with the said beam, the clamps b, and locking device D, substantially as and for the purpose herein specified.

**184,030. URIAH BALLARD,** Richmond, assignor to Joshua Ballard. Center Valley, Ind. Weed Turning Attachments for Plows. Nov. 7, 1876. Filed Aug. 21, 1876.

Claim. 1. The combination and arrangement of the lever B, having holes c c c and pin D', with the pendent adjustable guide C, substantially as shown and described.

2. The clamp D having the stud E, in combination with the pendent adjustable guide C and curved lever B, substantially as set forth.

3. In combination with the curved adjustable lever B and pendent adjustable guide C, the spring L, and adjustable spring-holder I, by which the tension of the spring is made adjustable, substantially as described.

4. The combination and arrangement of the clamp D, pendent adjustable guide C, curved adjustable lever B, adjustable spring-holder I, and spring L with the beam A of the plow, all substantially as set forth.

**185,417. LEVI W. YAGGY,** Chicago, Ill., and **JOHN N. LOOP,** Kokomo, Ind. Stalk, Stubble, and Weed Turners Dec. 19, 1876. Filed Sep. 7, 1876.

Claim. As a weed-turning attachment to plows, the curved spring-rod A, having the hook end a, and extending rearward nearly on a line with the edge of the plowshare, in combination with the block C, clamp D, and plow-beam, substantially as shown and described.

**186,344. DAVID W. HUGHES,** St. Louis, Mo. Plow Attachments. Jan. 16, 1877. Filed Jan. 15, 1876.

Claim. The colter-wheel B, journalled in the adjustable shank B', in combination with the metallic hook C, curved to conform to the mold-board D, and pivoted to the shank B', so as to admit of an adjustment up and down with the colter-wheel, and also capable of a separate circular adjustment in a vertical plane on the bolt a, substantially as described, and for the purpose set forth.

**189,374. G. H. McDONEL, J. THORN,** and **S. EWING,** Fostoria, Ohio. Weed-Hiders. Apr. 10, 1877. Filed Sep. 5, 1876.

Claim. The above-described device for covering grass and weeds, consisting of the rod D, having the hook C and the prongs E and F, in combination with the clamp A, provided with the eye B, arranged to attach the weed-turner D E F loosely to the front part of a plow-beam and allow the prongs to drag in the furrow last cut, substantially as shown and described.

**195,760. THOS. M. HARBERT,** Burlington, Kans. Weed Folding Attachments for Plows. Oct. 2, 1877. Filed July 23, 1877.

Claim. The rod or bar H formed into bends, curves, and inclines, substantially as herein shown and described, to adapt it to be attached to a plow-beam for dividing, guiding, and folding down grass, weeds, &c., into the furrow, as set forth.

**197,665. JOS. REDMAN,** South Carrollton, Ky. Plow Attachments. Nov. 27, 1877. Filed Oct. 12, 1877.

Claim. 1. The rake attachment for plows herein described, consisting of the rake-board D, armed with teeth g, block E, having slot e, and beveled cut or recess e, bolts a a a a, clamps G G, nuts b' b' b' b', and auxiliary rake E, all constructed and combined to operate substantially as and for the purpose herein shown and specified.

2. In combination with the plow A B C, the rake attachment herein described, consisting essentially of the parts D E F G G and adjusting-wedge H, substantially as and for the purpose herein shown and specified.

**202,051. BENJ. F. RARICK, WM. P. RARICK,** and **JONAS RARICK,** Lincoln Township, Republic County, Kans. Trash-Gatherers. Apr. 2, 1878. Filed Aug. 13, 1877.

Claim. A trash-gatherer formed by the horizontal cross-bars a, the vertical bars b b', the horizontal bar c, and the curved car c', carrying the roller d and the clamp f, all constructed substantially as shown and described, and for the purpose set forth.

**204,841. JOHN D. MUNSON,** Beloit, Wis. Plow Attachments. June 11, 1878. Filed Mar. 30, 1878.

Regulator-hook adapted to catch stalks and other obstructions, and place them in position to be folded under bottom of furrow by crank-shaft having rearward and downward-bent point and shield.

Claim. The combination with an ordinary plow, the crank shaft D, and operating devices constructed substantially as described of the pivoted regulator hook I, pivoted lever L, and connecting rod h for the purposes described.

**218,071. JAMES SHERRILL,** Harrisburg, Oreg. Weed Turners. July 29, 1879. Filed Jan. 8, 1879.

Claim. The combination of the stem A

and the curved guard B with the clamp C, which secures the stem in vertical adjustment upon the plow standard said stem and guard forming by their union the described unbroken working point *a* substantially as set forth.

**222,011. JOHN G. CATES,** Russellville Ky. Weed Turners Nov. 25, 1875. Filed Sep. 23, 1878.

Claim. In a weed turner the angular flat bar D, having the dovetailed end *b* secured to the clip C and bent backwardly and downwardly in a line with the plane of the forward edge of the mold-board to a point *c* then laterally across the front of the mold-board and then downwardly to form a guide *d* in combination with the mold enter G secured to the portion of the bar between the clip and the point *c* substantially as and for the purpose specified.

**228,192. JOHN R. HARBAUGH,** Cicero, Ind. Plow Attachments. June 1, 1880. Filed Feb. 18, 1880.

Claim. The combination with the plow-beam of the clip B having laterally projecting vertical lugs C C and the bracket R, pivoted between said lugs and carrying a drag D, consisting of a hook F terminating at one end beneath the plow beam in a point, E, and extending downward and rearward alongside of the mold-board and thence forward, and terminating in an upwardly turned point G, substantially as and for the purposes set forth.

**244,948. JAMES J. TEMPLES,** Homer-ville, Ga., assignor to Lucius C. Mattox, same place. Weed Turners. July 26, 1881. Filed Apr. 30, 1881.

Claim. The combination substantially as hereinbefore set forth, of an arm or support bolted to and depending vertically from the plow beam and having a series of horizontal angular holes formed through it one above another and parallel with the line of the plow beam the turner *c* having an angular shank adapted to fit snugly into any one of the horizontal holes in the depending arm and having a series of pin holes *c'* and the retaining pins *e e* all constructed and arranged so that the turner *c* may be adjusted vertically or forward and backward over the mold-board of the plow, substantially as set forth.

**253,395. RULIF V. KENNEDY,** Mo-dena, Mo. Attachments for Plows. Feb. 7, 1882. Filed Aug. 6, 1881.

Claim. 1. The hook A having the vertical shank *a* in combination with the clip B bolted to the plow beam and having the plate *c* pro-vided with a pin *c'* upon which the hook is hung or pivoted, substantially as and for the purpose set forth.

2. The combination with the hook A having the vertical shank *a* of the clip B and spring D, connected to the hook-shank and the clip, sub-stantially as and for the purpose set forth.







